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DEBRIEFING PROCESS FOR THE MAINTENANCE
SECTIONS OF THE ISRAELI AIR FORCE
FIGHTER SQUADRONS

by

Offer Lapidot

December 1988

Thesis Advisor: Benjamin J. Roberts

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Israeli Air Force Fighter Squadrons

by

Offer Lapidot
Lieutenant Colonel, Israeli Air Force


Submitted in partial fulfillment of the
requirements for the degree of

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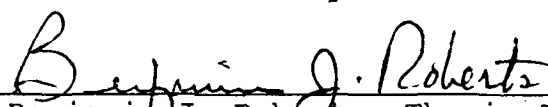
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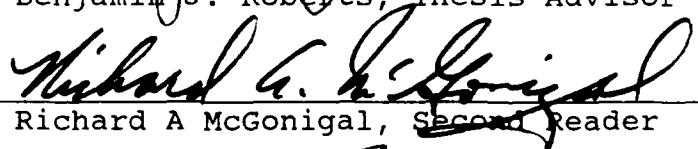
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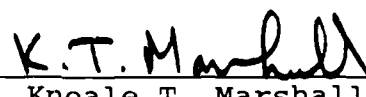

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ABSTRACT

The objective of this thesis is to suggest a daily routine debriefing process for the maintenance sections of the Israeli Air Force fighter squadrons. It is argued that the debriefing process may serve as vehicle for higher level of personal and organizational effectiveness.

Ongoing debriefing process in one squadron, has been assessed, opinion data have been collected, and relevant literature has been reviewed. The questions addressed in this study, are: (1) what is the role of debriefing process in the maintenance sections: (2) what is the debriefing structure, forums, frequency, and discussion subjects; (3) what are the attitudes of targeted sectors toward the suggested procedure, and (4) what are the organizational changes and concerns to be considered when implementing this change.

Results have indicated strong positive attitudes, cost-beneficial appearance, and practicality of the proposed debriefing process. Guidelines for implementation are provided.

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I. INTRODUCTION

The objective of this thesis is to assess the suitability of the debriefing process for the maintenance sections of the fighter squadrons in the Israeli Air Force (IAF). Such debriefing processes have not yet been adopted. It is felt that a debriefing process would improve work performance, organizational climate, communication, and the like. This study will, hopefully, confirm or deny those feelings.

A. WHAT A DEBRIEFING PROCESS IS

Debriefing is a process of reviewing or assessing event(s), and/or performance by its/their participant(s). In the context of this thesis, the debriefing process refers to a scheduled meeting of workers (enlisted/officers), where they discuss their performance, their problems associated with the mission and/or performance, and try to draw conclusions for future improvement. The debriefing process could appear in many different forms and situations. The principle which underlies debriefing, is to review and summarize past performance and draw conclusions for future use.

B. THE PROBLEM AND THE THRUST

The writer's experience has shown that aircrews' attitudes, approaches, and culture are much different than other

populations within the same organization. In most cases, although in the same squadron, aircrews speak a "different language" than maintenance crews, they also behave differently, view and react to events differently, and "do business" differently. This phenomenon could be attributed to some causes such as different human potential, different education prior to joining the military, different social segment or different education and experience throughout the military. The difference in education during the military period seems to be the most accessible and practical item for study and therefore could be studied if isolated. The learning process in the aircrews population appears to be much more efficient and rapid. One could attribute many of the above differences to the different education or, more specifically, to the debriefing process.

Aircrews learn in the beginning of their training to critically and honestly assess their own performance, openly share their ideas and feelings about the mission, give and receive feedback, and emphasize the "lessons learned," rather than focusing or appraising the personal performance. The IAF found the aircrews "Debriefing Institution" as an extremely useful vehicle for mutual learning and self-development, and have exploited these sessions for other communication needs as well. This process continues along their flying career on a daily basis, and presumably significantly influences and shapes the IAF culture.

The maintenance sections, on the other hand, do not have such a debriefing process. People from these two populations often meet for a common debriefing in the headquarters, for instance, and then the cultural difference as well as a difference in mentality immediately emerge. The existence of this difference is broadly accepted throughout the IAF, although the cause and effect relations may be differently interpreted.

The "way of doing business" on the aircrews part, appears to be better than on the maintenance crews part in many respects. This is the writer's thesis, that those benefits can and should be gained by the maintenance crews as well.

C. THE STUDY OBJECTIVES, QUESTIONS, SCOPE, AND LIMITATIONS

The objectives of this study are to suggest a debriefing process for the maintenance sections of the IAF fighter squadrons, and to identify and discuss some of the problems associated with the implementation phase of such a debriefing. The scope, however, is limited to the IAF fighter squadrons, although the principles could be applied to other IAF units as well.

A debriefing process presumably contains many psychological, physiological, and social aspects of human behavior. Comprehensive theoretical analysis may include broad areas such as psychology, sociology, organizational behavior and management, which are beyond the scope of this work. This

study, however, is concentrated upon the practical aspects of the issue, although some theoretical aspects have been reviewed, and pieces of theory have been utilized to reinforce, support, or explain, when it seemed appropriate. Two theoretical aspects have been reviewed: (1) performance feedback; and (2) the management of change. Those are by no means the only pertinent ones, or necessarily the most important ones.

The questions addressed in this study are: (1) what is the role of the debriefing process in the maintenance sections; (2) what are the debriefing structure, forums, frequency, and discussion subjects; (3) what are the attitudes of targeted sectors toward the suggested procedure; and (4) what are the organizational changes and concerns to be considered when implementing this change?

Limitations imposed upon the study were the physical distance of the targeted "field," and the lack of scientific experimental design. There is only one squadron which has implemented such a debriefing process. This ongoing process had not been originally designed as an experiment, and thus has lacked the advantages of a controlled experiment. However, opinion data have been gathered from that squadron, which have been utilized for some analyses.

D. DEFINITIONS AND ABBREVIATIONS

1. Definitions

- (1) Debriefing--A scheduled meeting where participants review, summarize, share ideas, and draw conclusions out of a certain activity or performance. A debriefing session typically follows every exercise, special event or extraordinary occurrence.

2. Abbreviations

- (1) Israeli Air Force (IAF);
- (2) Commanding Officer (CO);
- (3) Maintenance Section Commander (MSC);
- (4) Headquarters (HQ);
- (5) Aircraft (AC);
- (6) Line Chief (LC);
- (7) Department Chief (DC).

E. ORGANIZATION OF STUDY

In the following chapters the organizational background is provided, feedback literature is reviewed, the methodology of research is discussed, analysis of data is presented, implementation problems of the particular debriefing session are discussed in conjunction with the literature and, finally, conclusions are drawn and recommendations are suggested.

The background in Chapter II will provide the reader with a general idea of the relevant part of the organizational structure and culture. In the literature review, Chapter III, feedback characteristics are noted. In Chapter IV a review of literature about change processes is

presented and is inserted next to the discussion regarding the implementation phase. An overview of the methods used and limitations imposed on the study are presented in the methodology, Chapter IV. In Chapter V, the reader is provided with the questions and the analysis of the data. This chapter offers the researcher's interpretation of that data. In Chapter VI, the implementation phase, the relevant literature is reviewed. This chapter discusses the anticipated problems and points out how and where some theoretical models may be used to ensure successful implementation. The last chapter, Chapter VII, contains the conclusions drawn from the study and suggests recommendations for practical use.

II. BACKGROUND

A. STRUCTURE AND ACTIVITY

A typical Israeli fighter squadron is composed of two sections, namely, the Aircrew Section and the Maintenance Section. At the head of these two sections are placed two A/F majors, each of whom is a professional in his area. He reports directly to the squadron commander (CO). The commander of the Aircrews Section serves also as the squadron vice commander, but his major concern is aimed at the Aircrews Section. His other job as a vice squadron commander consists more of being an available replacement whenever needed. Special missions are sometimes delegated to him. The Maintenance Section Commander (MSC) is a ground-crew officer, and is the senior maintenance professional in the squadron.

The maintenance section is composed of lines and departments. The area where the aircraft (AC) are parked is called a "Line." In each squadron there are a number of lines which are physically distant from each other and from the squadron headquarters (HQ). The departments are typically located in close proximity to the squadron headquarters. The departments are divided by professional skill types.

The head of each line/department is a petty officer, typically E-7/E-8. A permanent maintenance crew is assigned to each line and department. The crews on the line, composed of the various professional skills, perform routine service, prepare AC's for flights and solve minor maintenance problems. The responsibilities of the department crews, on the other hand, are to perform major maintenance actions which can not be handled on the line, to perform more complicated maintenance procedures, and to provide spare parts and training as needed. Typically, the less experienced and more junior enlisted are assigned to the lines, while the more senior technicians are usually assigned to the departments.

Working shifts do not exist. Most of the work force remains at work until the job is completed. The work day length depends almost solely on the type and number of malfunctions which have occurred during that particular day. A typical work day length is about 12-14 hours for the juniors. The seniors (who are on voluntary career service as opposed to the juniors who are obligated to regular service) have a much shorter work day of about eight hours. Some of the seniors are required to stay after the normal working day hours to supervise and assist with troubleshooting.

B. CULTURE

The Maintenance ground crews have received their basic maintenance training in the Air Force Technical School, and more advanced training in the additional courses within and outside their squadrons. However, the most significant part of the training, and all of the daily practical skills, have been acquired on the job. Most of the work force, especially on the lines, are junior enlisted who have not finished their training process. The culture, or the "way of doing things here," has a significant influence upon the junior enlisted. The on-the-job training is a crucial part of the overall training in the first years of service. Much effort is devoted for training and enhancement of the work force, along with fulfillment of the other requirements. Maintaining a high level of performance is a prerequisite for tasks such as AC maintenance. Errors or substandard work may lead to safety hazards or even fatalities. A great deal of emphasis, therefore, is placed upon the quality of work.

The nature of the human relationships within the maintenance section heavily depends upon the leadership style and the MSC's abilities. The CO's leadership style has also a significant influence on the atmosphere, motivation, and performance of the maintenance section personnel. One of the most popular attitudes of commanders in the IAF is to create and maintain open channels of communication

horizontally and vertically. The actual degree of openness, however, varies from squadron to squadron and depends heavily upon the command's management style, priorities, and preferences. Communication difficulties resulting from technical or personal barriers still exist.

C. THE DEBRIEFING PROCESS BACKGROUND

As mentioned earlier, the debriefing process is a routine procedure of the aircrew sections. It does not take place in the maintenance sections. However, one squadron has applied a debriefing process to its maintenance section and this squadron has 18 months of an ongoing debriefing process. This will be evaluated later. The following is the "history" of that debriefing.

The CO of that squadron at the time who initiated that process was concerned with what he felt were unacceptable attitudes of maintenance officers or ex-maintenance officers toward debriefing of exercises and/or other performance. He noticed the different in approach between aircrews and maintenance crews. After discussing his concerns with the Air Force Chief of Maintenance, he decided to initiate an educational program from the bottom up, starting in his own squadron. The more he thought about the idea, the more he became convinced about its advantages and his ability to carry it out. He forwarded his ideas to peers and subordinates, and did not find any major conceptual arguments against it. However, doubts have been raised

about the practicality of applying such time-consuming processes to the maintenance section which was already overloaded with the normal work. One of the sound arguments against the idea was the "cost/benefit" argument, which consists of the big "price" (time) that had to be paid for what looked like intangible benefits which might be considered nebulous, and without payoff. In spite of these arguments, trusting in his belief and vision, he decided to implement the debriefing in his squadron. After convincing his MCS, he conducted meetings with the key people in the squadron to convince them and ensure their support and commitment. After ensuring a critical mass of key persons who had supported the idea, he explained it to the entire squadron and announced it to be their main goal for the coming training term. To promote a good starting point of openness and a more honest atmosphere, he announced in public that he would not penalize in any manner, any maintenance crew member who had made an error at work, and who now shared his "lesson learned" with others during the debriefing session.

The debriefing process consisted of two stages: (1) debriefing of the lines/departments; and (2) debriefing of Line-Chiefs (LC)/Department-Chiefs (DC). The first one included all the crewmen in the respective line/department, headed by the LC or DC, respectively. The timing of the debriefing has varied but in most cases it has been

performed in the afternoon after all scheduled flights have finished. The second debriefing included the entire LC/DC and the maintenance officers, and was headed by the MSC. That second debriefing closely followed the first one, with the intention to summarize the debriefings of the lines/departments, as well as creating an opportunity to discuss other problems or issues on a broader level.

Squadron commanders in that squadron have changed since the debriefing process began, but the procedure has remained pretty much the same.

III. PERFORMANCE FEEDBACK--LITERATURE REVIEW

Performance feedback has been included in the literature and practiced in the field for a long time in an attempt to understand and use it to enhance productivity. Studies of different feedback dimensions have been made and several authors have suggested a conceptual framework to make them more understandable. It seems that no one conceptual framework is broadly accepted among the researchers and there is no agreement whether performance feedback should be viewed as a whole or partitioned to its characteristics. Most researchers, however, agree that any characteristics which could be defined are at least not mutually exclusive. In this review, six characteristics of feedback offered by Fairbank and Prue (1982) will be utilized as a basis for the discussion.

Several definitions of feedback are suggested in the literature. Duncan and Bruwelheide (1986) have grouped them into "Formal" and "Operational" definitions. Brethower (1972) defines feedback as "Information about past performance which is used to guide future performance." Murrell (1975) defines feedback as "Information return related to an output." Different definitions sometimes represent the difference in approaches, categorization or emphasis. Illgen, Fisher and Taylor (1979) have recognized feedback

"as essential for learning and for motivation on performance-oriented organizations." They conceived of feedback as "a special case of the general communications process in which some sender conveys a **message to a recipient.**" Another researcher, Annett (1969), viewed feedback as motivation, typically, in the context of goal setting. Vroom (1964), in his expectancy theory, concluded that feedback operates by means of three processes: (1) feedback as a relationship between performance and consequences; (2) feedback that serves as a learning or informational function, (3) feedback that serves as a motivational function. "According to Vroom's (1964) theory, feedback is an incentive, or a promise, of a reward based on correct or appropriate performance." (Duncan and Bruwelheide, 1986)

"Information about the performance of individuals and groups has long been seen as a potentially powerful tool to enhance organizational effectiveness." (Nadler, 1979) That conclusion has been supported by large databases (Prue, Frederiksen, and Bacon, 1978; Ford, 1980). Understanding of the dimensions of feedback and its interrelationship with other interventions is the focus of some current research.

A. FEEDBACK CHARACTERISTICS

As mentioned, six characteristics of feedback were identified. These are: (1) feedback source; (2) feedback privacy; (3) feedback participants; (4) feedback content;

(5) feedback mechanism; and (6) temporal characteristics of feedback.

1. Feedback Sources

"Feedback source referred to the individual or device that presented the information to the performer." (Balcazar, Hopkins, and Suarez, 1986) They defined 11 feedback sources:

- (1) Managers and/or supervisors;
- (2) Subordinates;
- (3) Co-workers;
- (4) Researches;
- (5) Mechanical devices;
- (6) Self-generated feedback;
- (7) Customers, and various combinations of sources;
- (8) Supervisor's and self-generated feedback;
- (9) Mechanical and supervisor's feedback;
- (10) Researcher and supervisor's feedback; and
- (11) Supervisors and co-workers' feedback.

Greller and Herold (1975) postulated five feedback sources, namely, formal organization, immediate supervisor, co-workers, the task, and self. They found that the informativeness of these sources increased as they moved from psychologically distant (i.e., to the formal organization) to psychologically closer (i.e., to one's own feelings and ideas) sources. Herold and Parsons (1985) reinforced these

findings as well as Hansen and Muchinsky's (1978) findings concerning the ordering of feedback.

In reviewing the empirical literature of the last ten years, Balcazar, et al., (1986) concluded that "feedback delivered by supervisors or managers has been more frequently associated with consistent effects" (as opposed to the other sources in which they could not find any evidence of consistent effects throughout their review). Herold and Liden (1987) concluded from their field research that individuals viewed feedback from least positively to most positively in the following order: feedback from formal organization, feedback from co-workers, feedback from supervisors, tasks, and finally, the individual's own feelings and ideas.

Illgen et al., (1979) suggested that the credibility and power of the source are important dimensions. Other researchers found that workers valued feedback from sources that were closer to the performance of the task (Tuckman and Oliver, 1968; Greller et al., 1980; Greller & Herold, 1975).

2. Feedback Privacy

Feedback privacy referred to the intended audience of the feedback, or whether the feedback is distributed publicly, privately or any combination of both. Balcazar et al., (1986) defined these three types: (1) publicly posted feedback; (2) private feedback; and (3) a combination of these. Prue and Fairbank (1981) agree to that division, and

stress that the degree of the combination varies on a continuum. They analyze, for the sake of simplicity, only the two extremes of that continuum. Welsch et al., (1973), Greene et al., (1975), Quillitch (1975), Quillitch (1978) have suggested that public feedback may have greater effect than private feedback. Prue and Fairbank (1981), on the other hand, stressed that "the degree to which performance information is made public or private within an organization should be determined by a variety of factors." They suggest that private feedback is best used when:

(a) baseline performance is low and publicly displayed feedback might be too aversive; (b) supervisors are interpersonally skilled to deliver feedback on a one-to-one basis; (c) resources exist for the expenses incurred in delivering individual feedback; (d) workers are in close proximity to their supervisors; and (e) an individual performance is being compared with baseline performance or a designated standard.

In addressing the practical aspect of feedback delivery, they emphasize that public feedback is relatively less demanding, more convenient, less time consuming, and thus, cheaper. However, they refer to certain types of public feedback, such as a bulletin, graphs, summaries, etc. Their conclusion may not be applicable to feedback processes such as group discussion, debriefing and so forth.

Balcazar et al., (1986) found in their empirical research review that no significantly different effects exist between the above feedback types.

3. Feedback Participants

Feedback participants are the people whose performance was described by the feedback. Performance could be attributed to an individual, a group, or any combination of these. Balcazar et al., (1986) simply defined these three: (1) individual(s); (b) group(s); (c) individual(s) and group(s) combined. Nadler (1979) has agreed upon the individual and group dimensions but has defined a third type of individual in group setting. According to Nadler's analysis, feedback concerning group performance will affect the individual differently than if it is seen as simply an individual performance. He has attributed that difference to the difficulty of the individual to separate his/her own performance from the group performance, the limitation to act on the information by the inherent nature of the group, and the limited influence an individual may have on the total group performance given the structure of the group's task (Steiner, 1972). Nadler (1979) has described a group performance model for better understanding of why and how feedback should affect the performance of task performing group.

Emmert (1978) reported an increased productivity in a manufacturing facility due to group feedback. An additional increase in productivity had been achieved when individual feedback was provided to the workers. Shook et al., (1978) also found that individual feedback is more

effective than group feedback. Newby and Robinson (1983) reported that individual feedback alone and individual feedback with reinforcement increased efficiency, whereas group feedback did not. On the other hand, Welsch et al., (1973) were in favor of group feedback.

4. Feedback Content

Feedback content refers to the type of information provided to recipients. Balcazar et al., (1986) identified eight kinds of content: (a) comparison of an individual's performance with his/her previous performance; (b) comparison of a group's performance with its previous performance; (c) comparison of an individual's performance with a standard of individual performance; (d) comparison of a group's performance with a standard of group performance; (e) comparison of individual performance with group performance; (f) comparison of individual performance with group performance and with a standard of group performance; (g) comparison of individual performance with a standard of group performance; and (h) comparison of group performance with a standard of individual performance.

Prue et al., (1981) stressed the need to address some considerations when selecting feedback content. Among their suggested considerations are the types of information available within the organization, whether or not comparisons can be technically drawn between employees, and

the number of employees whose performance is below, above, or at standard.

Hamner and Hamner (1976), McCall (1975), have suggested that effective feedback should be clear and understandable, specific to the targeted behavior, and have emphasized the performance of the recipient. Nadler et al., (1976) suggested that feedback should only convey information that is useful for improving or maintaining desired performance. Balcazar et al., (1986) have stated that "feedback should be an accurate reflection of the work done," and that "feedback should be quantitative." Annet (1969), Bilodeau (1966), and Bourne (1966) have suggested that recipients must be able to convert or transform the feedback message to units that are meaningful to them.

Another topic that is addressed in many studies is the sign of the feedback, and its influence on supervisors and subordinates. Tesser and Rosen (1975) found a large amount of empirical evidence that, in general, people are reluctant to communicate negative information to another person when the information directly concerns that person. The promptness and frequency of feedback also is found to be correlated to its sign. Illgen et al., (1984) have concluded that although supervisors are one of the most valuable sources of feedback, supervisors tend to be very poor sources. This may be due to several factors, such as distortion of negative feedback, and the reluctant to give

negative feedback. Illgen et al., (1981) also concluded that "supervisors distort negative feedback when it must be given personally," and they tend to give less appropriate feedback when they attribute performance to ability rather than effort. Duncan (1986) suggested that when positive information is compared to negative information, the feedback has been equivocal and in general have shown that positive and negative information are not necessarily polar extremes.

5. Feedback Mechanism

Feedback mechanism refers to the means used to communicate the feedback information to the recipients. Prue and Fairbank (1981) have described four basic feedback mechanisms, namely, verbal, written, mechanical, and self-recorded. Balcazar et al., (1986) have added graphs which display individual/group performance, and several combinations of the above, while ignoring the self-recorded feedback.

Verbal feedback, according to Prue and Fairbank (1981), is perceived to be the easiest to submit, but some limitations should be taken into account, such as the interpersonal relationship between the supervisor and the subordinate, the supervisor's interpersonal skills, and physical distance which may technically prohibit face-to-face meeting, etc. This type of feedback is the most common use.

Written feedback refers to a variety of forms including: written personal communications (Weitz et al., 1954); memos (Kreitner et al., 1977); newsletters (Patterson et al., 1972); and public posting of information (Quillitch, 1974). Performance appraisal is also a sort of written feedback, and is typically kept in files for future comparisons or use. Prue and Fairbank (1981) have emphasized the aversiveness as a disadvantage of the most common method of written feedback, the public posted feedback. However, they noted other advantages of written feedback including: it serves as a concrete, long term assessment of performance; it can be easily monitored by the manager; and it serves as a complete history of employees which may be used for other purposes, e.g., training.

Mechanical feedback is the feedback provided by mechanical devices such as videotape or other electromechanical records of any performance measures. Examples of these have been discussed by Bricker et al., (1972), Walter (1975), and Parsons (1974). Prue et al., (1981) have pointed out that although this feedback type has been found to be efficient in the short run, not enough research has been done to assess the long run influence. They have suggested that further exploring of the long run influence is needed because these devices are relatively cheap, provide continuous and prompt feedback, and thus may have a

promising future. They have also suggested assessing the combination of mechanical devices in relation to verbal feedback. This issue has been addressed by Ford (1984), who analyzed the effects of three feedback procedures on the teaching skills of paraprofessionals in a mental retardation facility. He compared supervisor feedback, videotape feedback, and a combination of both. He found that the combination yielded the greatest and most rapid improvement in work performance, whereas supervisor feedback and videotape alone, yielded improvement but not as much.

None of the above researchers have noted the objectivity of such devices. The elimination of human biases or perceived biases by recipients of the feedback would be a great advantage of such devices in addition to their accuracy, promptness, and price.

Self-recorded feedback refers to the mechanism of delivering performance data by having the employees generate their own feedback by self-recorded performance (Komaki et al., 1980). Although self-recording mechanisms have not been widely applied and researched, some studies reported usage of such techniques (Komaki et al., 1980; Lamal and Benfield, 1978; Prue et al., 1980). Those studies demonstrated the utility of self-monitoring mechanisms in organizational interventions.

Greller (1980) reported that employees favored feedback systems upon which they had control, more than

externally administered systems. Prue and Fairbank (1981) noted that self-monitoring systems could be useful when there are no physical products to count or measure, employees are not closely supervised, or when work process variables such as effective use of time, play an important role in the overall productivity.

6. Temporal Characteristics of Feedback

Temporal characteristics of feedback refer to the question of when and how often feedback should be provided, including the total duration of the feedback interaction, the time delay between performance and the feedback on that performance (Prue and Fairbank, 1981), and the frequency of feedback.

Prue and Fairbank (1981) stated that the duration of the feedback session is a function of the content and the mechanism employed to deliver the information, and thus plays an interdependent role with other feedback factors. They have stressed that the duration is not a significant factor by itself.

Numerous researchers have studied the influence of delayed feedback on the performance. Prue and Fairbank (1981) concluded that no significant difference between prompt and delayed feedback has been found in field studies, and the feedback has yielded positive results no matter how big was the time lag. Krumhus and Malott (1980) have also concluded that immediate feedback was no more effective than

delayed feedback. However, Mager and Pipe (1970), Pennypacker (1975), Hall (1975), Fuqua (1976) concluded that feedback should be immediate.

Illgen et al., (1979), Cook (1968) found a positive relationship between frequency of feedback and performance. Balcazar et al., (1986) reported that daily and weekly feedback are much more consistently effective than monthly feedback. Therefore, they concluded, feedback should be provided at least weekly.

The feedback classification that guided the above review is structural in nature. Many studies have partitioned the feedback by its components in order to study its various dimensions and to understand the impact of each on the worker. Real life situations, however, are much more complex and have less control over other variables. Understanding of the cause-consequence relationship in many cases is not totally clear. One could also point out the lack of agreement among researchers as a sufficient indication of the ambiguity of this subject. Balcazar et al., (1986), who tried to draw some conclusions from the empirical research of the last ten years, also faced many inconsistent results, in addition to the more consistent ones. Larson et al., (1985) tried to assess the timeliness, specificity, frequency and sensitivity of the manager's positive and negative performance feedback. They found that those variables covaried very strongly. They concluded that it may be more

appropriate to focus on the overall quality of the managers' feedback than to treat each dimension separately. Duncan and Bruwelheide (1986) have also suggested that we focus future research on functional rather than structural grounds.

B. SUMMARY

Some characteristics of feedback have been defined and reviewed. The literature has not suggested clear-cut conclusions about the separate feedback characteristics. One of the reasons might be that these characteristics are not mutually exclusive. Studying the feedback as a pure phenomenon is impossible in many cases because feedback serves other functions such as reinforcement, stimulus control, etc. In many organizational settings, goals and feedback are set together, so an attempt to distinguish between effects is useless. Some studies have suggested focusing on the functional rather than on the structural aspects of the feedback.

IV. METHODOLOGY AND DATA

A. METHODOLOGY

The debriefing process which has already been implemented in one maintenance section was a natural target for the current study. However, this debriefing process had not been designed as a scientific experiment. It had been designed and performed according to the squadron commander's belief and vision at that time. Thus, some difficulties for scientific research have emerged. A scientific experiment requires experimental variables, or experimental group, and control group. There is also a need for reliable measures to assess the influence of the "treatment" (the debriefing process) on the experimental group and compare it to the control group. Another possible research design could have been the time-series approach which requires observations of the experimental group before and after the treatment. Neither of the above could have been completely attained in this case. To accomplish the experimental design, a good objective measure of consequences should have been designed or existent. Such good objective measures in the ongoing setting could not be identified although an attempt to find them had been made. However, control groups were available, namely, two other squadrons. Both have possessed the same AC type and have been similar in size and missions. One of

those squadrons is located in the same base and the other is located in a different base. The experimental squadron, namely, the squadron where the debriefing process has been implemented, is titled in this study as squadron number one (#1). The sister squadron within the same base is titled squadron number two (#2), and the third squadron, which is in the different base, is titled squadron number three (#3).

The ongoing debriefing being studied, as mentioned, has been in process about 18 months. In that respect the research is an ex-post facto design. However, the research is not aimed at the scientific determination of the cause-effect relationships but at the contribution of the debriefing to some hypothesized areas, its characteristics, and its implementation problems as defined by the research questions.

In these circumstances, and after considering the available research methods, the conclusion was to rely upon opinion data as the main source of the information which was needed for the assessment, namely, the survey method. The control groups could not serve to compare consequences because these could not have been objectively measured, as mentioned, but rather have served to compare opinions and attitudes in several issues hypothesized to be different. In that respect, the research has attributes of a field study.

To collect meaningful opinion data, four questionnaires were designed: (1) a questionnaire for line/departments enlisted personnel in the three squadrons (for opinions' comparison purposes) regarding general attitudes about the hypothesized issues; (2) a questionnaire for squadron #1 regarding the actual debriefing process; (3) a questionnaire for LC/DC's and officers in squadron #1 regarding their debriefing with the MSC; and (4) a questionnaire for the COs and MSCs of the three squadrons to assess their general approaches toward the idea of a maintenance section's debriefing. The opinion survey could not have been performed but through the mail because of the physical distance. On the other hand, due to the nature of the surveyed units, the percentage of answered questionnaires was relatively high.

The debriefing implementation recommendations have been based on the subjective experience of the writer, and have been partially supported by several pieces of existent theories in the field of change.

Overall, to answer the research questions, the use of the following methods have been made: field study, survey research, and theoretical study.

B. QUESTIONNAIRES

As mentioned, four questionnaires have been assembled. The questionnaires were written originally in Hebrew and a translation into English is presented in the analysis

chapter and the Appendix. The questions were composed by the writer who is familiar with the environment and culture of a squadron, and had made an effort to use the "maintenance section language." Some of the questions have been worded pretty closely to each other for reinforcement and reliability purposes. These questions were mixed up to avoid an observable pattern by the personnel who were to fill out the questionnaire. The original questionnaires were reviewed, prior to submission, by the questionnaire's specialist of the main IAF Sociology Office.

The questionnaires for line/department enlisted personnel in all three squadrons, for LC/DC's in squadron #1, and for enlisted personnel in squadron #1, were designed to test the following hypotheses:

- (1) The debriefing is a vehicle for transfer of information from top-down and bottom-up within the maintenance section;
- (2) The debriefing is a tool for mutual learning and professional enhancement;
- (3) The debriefing is a vehicle for enhancement of environment and relationships between individuals in the lines/departments;
- (4) The debriefing is a vehicle for enhancement of openness and freedom in expressing concerns;
- (5) The debriefing is an educational tool for honesty, and admission of maintenance errors;
- (6) The debriefing is a tool for performance feedback;

- (7) Participants appreciate the debriefing process in general.¹

Additional issues which were addressed in squadron #1's questionnaires are several procedural aspects of the debriefing process:

- (1) The length of a good debriefing;
- (2) The frequency of the debriefing;
- (3) The right timing;
- (4) Subjects for maintenance section debriefing;
- (5) Attitude toward participation of maintenance officers in the line/departments' debriefing;
- (6) The right forum for the debriefing; and
- (7) Open-ended question asking for additional comments and suggestions.

The last questionnaire, namely the questionnaire for CO's and MSC's, was designed to assess their opinions regarding the above hypotheses, to receive their attitudes toward the debriefing in general, and to collect their ideas in terms of practicality, attainability, etc.

Note that the listed hypotheses are not mutually exclusive. Due to their nature, grouping and interpretation may differ from that presented in this report. This difficulty is addressed in the analysis, Chapter V.

Most of the questions were designed as closed-ended statements. The person whose attitudes were being evaluated

¹This hypothesis, obviously, has not been tested in the three squadron's questionnaire.

had to circle the "right" numerical choice, on a scale of zero to five:

- 0 = Irrelevant statement;
- 1 = Statement is totally incorrect;
- 2 = Statement is incorrect to a great extent;
- 3 = Statement is partially correct;
- 4 = Statement is correct to a great extent;
- 5 = Statement is totally correct.

The following analysis chapter will provide the reader with an overview of the hypotheses, their relevant questions and the respective results, and a discussion regarding each hypothesis.

V. ANALYSIS

The best design to assess the debriefing process would have been to measure the output of the maintenance section in squadron #1, and compare it either to its own output prior to the intervention, or to the output of the control group(s), assuming other things are equal. Unfortunately, both these methods could not be used due to the nature of the study. The reasons were the lack of measurable output and the absence of an experimental design prior to the intervention. Therefore, a field study design, along with an opinion survey, were chosen as the prime methods of this study.

Two types of questionnaires have been presented in the last chapter: (1) the three independent samples (comparison of the three squadrons); and (2) the one sample (attitudes of people in squadron #1, and CO/MSC's attitudes). These two types were analyzed using different statistical procedures. The basic parameter for the analysis in all the cases was the median. Among the reasons for choosing the median rather than the traditional mean were the uncertainty regarding the normal distribution of the variables being evaluated,¹ and the fact of limited scale being used in

¹The sample data appeared to be skewed in many cases while the sample sizes were a relatively large percentage of the entire population.

terms of finite ends which probably "blocked" the distribution at those points and artificially forced skewed distribution whenever the central measure tended to be off the real center (the digit 3 on that scale). The use of the median also neutralizes the effect of extreme observations and seemed to better represent the data observed in the samples.

Nonparametric statistics have been chosen as the basic procedure for the data analysis. The reasons for that choice have been: (1) uncertainty regarding the normality of the population; and (2) the scale being used was not more than ordinal² in nature. The one sample questionnaire has been analyzed while looking at the median as the representative measure of the respective variable. The interpretation of such a measure, in the absence of comparison, is somewhat subjective, and attitudes perceived as "highly supportive" or "weakly supportive" might be interpreted differently. The interpretation, therefore, has attempted to consider the entire available data. In the case of the three samples, analysis of variance was used to compare the scores of the experimental squadron with the control groups. The Kruaskal-Wallis test had been chosen as the appropriate nonparametric test, and had first applied to test the

²For an excellent discussion about the different scales, see S. Siegel, 1956, Nonparametric Statistics for the Behavioral Sciences, McGraw-Hill Book Company, Inc., New York, pp. 21-29.

hypothesis that the three squadrons' medians are the same. Whenever the null hypothesis was rejected ($P = .95$), a Mann-Whitney test was applied to test the null hypothesis that the median of squadron #1 and each of the control squadrons were the same ($P = .99$). The Mann-Whitney test was a one tail test where the alternative hypothesis was that squadron #1's median is greater than or less than each of the control squadrons, depending on the case.

The number of responses to each questionnaire varied with the type of questionnaire. In the questionnaire for the three squadrons, 45 people participated in squadron #1 ($N = 45$), 40 people in squadron #2 ($N = 40$), and 84 in squadron #3 ($N = 84$). In the questionnaire for line/department enlisted of squadron #1, 45 people have answered ($N = 45$). In the questionnaire for LC/DC's of squadron #1, only eight people have participated ($N = 8$), and therefore the statistical results have been considered carefully. However, interpretation of those questionnaires have accounted only for those cases where the median could serve as a representative measure for the sample distribution by looking at the histograms, and accounting only for cases with a standard deviation smaller than .9. The one sample questionnaire has been interpreted as having a specific tendency whenever the medians were different than three (the midpoint), and the Confidence Intervals (CI) were equal to or smaller than three digits on the scale of five.

A. RESULTS AND DISCUSSION

In the following pages, a review of the hypotheses being tested, their respective questions, and a discussion regarding those hypotheses are presented. Each hypothesis will be presented and discussed separately.

1. Hypothesis Number (1)

The debriefing is a vehicle for transfer of information from top-down and bottom-up within the maintenance section.

a. Enlisted Questionnaire, Squadron #1

- (1) I would know about other's mistakes at work, even if there was not a common debriefing. (MED = 3), CI = (3,4), STDV = 1.27.)³
- (2) The debriefing gives me an opportunity to transfer information to the MSC. (MED = 3), CI = (3,4), STDV = 1.32.)
- (3) My LC/DC transfers information to me from MSC. (MED = 5, CI = (4,5), STDV = .93.)
- (4) Since the debriefing process began, I know what is going on around the squadron. (MED = 3, CI = (3,4), STDV = 1.33.)
- (5) I trust my LC/DC to convey all the important messages from our shop to the MSC. (MED = 4, CI = (4,5), STDV = .97.)
- (6) The debriefing does not contribute anything for information transfer among shops in our squadron. (MED = 2, CI = (1,2), STDV = 1.25.)

³The abbreviations in parentheses stand for the median, confidence interval, and the standard deviation, respectively.

b. Enlisted Questionnaire, Three Squadrons Comparison

- (1) Usually I know immediately about events which take place in other shops. (#1 < #2, #1 < #3.)⁴
- (2) I easily relay important issues to my MSC.⁵
- (3) I feel that all the information the MSC wants me to receive, I do accept.
- (4) I don't know about other shops' problems.
- (5) I would like to receive more updates about what is going on in other shops in my squadron.

c. Line and Department Chiefs (LC/DC) Questionnaire in Squadron #1 (N = 8)

- (1) Since the debriefing process began, the information flow is better. (MED = 4, CI = (2,5), STDV = .93.)
- (2) Information which reaches me in the debriefing did not reach me before. (MED = 4, CI = (3,5), STDV = .83.)
- (3) I typically transfer to my men the main issues from the debriefing of the MSC forum. (MED = 5, CI = (4,5), STDV = .52.)
- (4) The debriefing of the MSC forum does not improve our knowledge about what's going on. (MED = 1, CI = (1,4), STDV = 1.25.)
- (5) Since the debriefing has been in process I manage to transfer to the MSC issues that I couldn't transfer earlier. (MED = 2.5, CI = (1,5), STDV = 1.51.)
- (6) Since the debriefing began, I can pass to the MSC issues that I hardly succeeded in passing earlier. (MED = 2.5, CI = (2,5), STDV = 1.60.)

⁴The greater-than or less-than notation along with the numbers, refers to the squadron's numbers, respectively, and denotes that squadron #1's median is significantly (P = .99) greater or less than the respective control squadron (#2, #3).

⁵When nothing appears after the question, it denotes that no significance (P = .99) has been found.

d. Discussion Regarding Hypothesis (1)

The comparison of the three squadrons has not revealed any advantage to squadron #1 over the other two squadrons. In fact, immediate information about events taking place in other shops has been perceived to be worse in that squadron (b.1).⁶ However, the enlisted personnel of squadron #1 have identified some significant roles of the debriefing with respect to information transfer, namely, the role of the LC/DC in conveying messages in both directions: upwards, and downward (a.3,5). They have also tended to reject the statement about the negligible role of debriefing in contributing to information transfer between shops (a.6). The LC/DC's have agreed about their role as information conveyers (c.3), and have also noted the contribution of the higher level debriefing, namely, the MSC's forum, to their awareness of the happenings around the squadron (c.2,4). The hypothesis about the debriefing being a vehicle for information transfer has been accepted, although no significant difference between squadrons could be proven. An explanation as to the lack of difference might be found in the too general terms used in that questionnaire.

The relationships between communication and effectiveness of the group have been addressed by O'Reilly

⁶The notation (b.1) refers to Section b and question number 1 within that section. When more than one number follows the section letter, more than one question has been cited.

and Roberts (1977). They have found that communications serve as a mediating variable between group structure and perception of group effectiveness. In that context, the accuracy of the information transferred has been influenced by the structure of the organization. One may argue that if the structure or procedures of the organization enable better information transfer, it might be expected to find higher group effectiveness. The debriefing is a procedural change which has been perceived to enhance the information transfer. Hence, improvement in effectiveness may be logically expected.

2. Hypothesis Number (2)

The debriefing is a tool for mutual learning and professional enhancement.

a. Enlisted Questionnaire, Squadron #1

- (1) I learn new things in debriefings. (MED = 4, CI = (3,4), STDV = 1.04.)
- (2) I have nothing to learn in debriefings. (MED = 2, CI = (1,2), STDV = 1.13.)
- (3) I have learned the same from others without debriefings. (MED = 3, CI = (2,4), STDV = 1.20.)
- (4) I learn from others due to the debriefing. (MED = 3, CI = (3,4), STDV = 1.12.)
- (5) My peers want to learn and improve their skills. (MED = 4, CI = (4,4), STDV = .99.)
- (6) I learn more from mistakes, rather than successes. (MED = 2, CI = (2,3), STDV = 1.26.)
- (7) Our overall performance has been improved since using the debriefing process. (MED = 3, CI = (2,4), STDV = 1.34.)

- (8) The new recruits learn faster with the debriefing process. (MED = 4, CI = (3,4), STDV = 1.23.)
- (9) I make less mistakes since the debriefing process began. (MED = 3, CI = (2,4), STDV = 1.31.)
- (10) The debriefing gives us an opportunity to learn from each other. (MED = 4, CI = (4,4), STDV = 1.12.)

b. Enlisted Questionnaire, Three Squadron Comparison

- (1) I learn a lot from others' mistakes. (#1 < #2, #1 < #3.)
- (2) Each person learns mainly from his own mistakes.
- (3) If I was aware of events and problems of others, I would make less mistakes.
- (4) The new recruits learn the work fast because they hear and see the seniors.
- (5) We learn a lot from each other.

c. Line and Departments Chiefs (LC/DC) Questionnaire in Squadron #1 (N = 8)

- (1) I don't learn new things in those debriefings. (MED = 1, CI = (1,3), STDV = .79.)
- (2) The debriefing creates a good opportunity for mutual learning. (MED = 4, CI = (4,5), STDV = .49.)
- (3) I feel that I am a better LC/DC since the debriefing process began. (MED = 2, CI = (1,5), STDV = 1.38.)
- (4) The LC/DC's have nothing to learn from each other through the debriefing. (MED = 1, CI = (1,4), STDV = 1.25.)
- (5) The atmosphere in our debriefings is a sort of learning and willingness for improvement climate. (MED = 3.5, CI = (3,5), STDV = .74.)

d. Discussion Regarding Hypothesis (2)

The results of both enlisted and LC/DC's questionnaires have tended to support the hypothesis of debriefing as a tool for mutual learning. The learning

process, as a subject, stands on its own merits. An in-depth discussion of that process is beyond the scope of this study. Therefore, no attempt to analyze the aspects of the learning process have been made. However, some implicit assumptions, which deserve notice, have been made while composing the questions. The writer has assumed, as noted by the questions he had chosen, that the debriefing process would positively influence mutual learning, the essence of learning, learning from maintenance errors, and the learning process of new recruits. However, not all of these learning aspects have been supported by the data. The formal hypothesis of mutual learning has been supported by the enlisted of squadron #1 (a.10), as well as by LC/DCs of the same squadron (b.2). Debriefing, as a tool for learning in general, has been supported by the enlisted of squadron #1 (a.1,2), and LC/DCs (b.1). However, learning from maintenance errors part, has tended to be rejected by the enlisted of squadron #1 (a.6). This tendency may explain why squadron #1 has had a lower score in another related question from the three squadrons questionnaire (b.1). This question (b.1) has included learning from others and learning from errors. The participants might have perceived the question's emphasis on the mistakes part and might have answered respectively.

It is interesting to note that most of the COs and MSCs have tended to support learning from maintenance

errors (Appendix:(6),(8),(9)). The essence of learning during the debriefing is supported by squadron #1's enlisted (a.1) and LC/DCs (b.1). New recruits have been perceived to learn faster due to the debriefing (a.8).

No support to actual professional enhancement has been found (a.7,9;b.3) in these opinion data. The relationships between learning and professional enhancement may not be so direct or trivial, and therefore, might not have been recognized by the participants in that case. It is the writer's opinion that professional enhancement should occur as a result of learning, in the long run. Beer and Huse (1972) have found that "effective and permanent learning comes after the individual had experimented with new approaches and received appropriate feedback in the on-the-job situation." (Finding No. 4) Their finding may explain the recognition of learning in the ongoing squadron debriefings. Beer and Huse (1972) have also found that "rather than T group, the operating, ongoing organization may be the best 'laboratory' for learning, with fewer problems in transfer of training." (Finding No. 5) This finding has reinforced the concept of learning on-the-job, and the debriefings have already been assessed as a tool for learning.

The hypothesis about the debriefing as a tool for mutual learning has been accepted. However, the actual professional enhancement has not been supported.

3. Hypothesis Number (3)

The debriefing is a vehicle for enhancement of environment and relationships between individuals in the lines/departments.

a. Enlisted Questionnaire, Squadron #1

- (1) The debriefing contributes to the learning climate in my shop. (MED = 3.5, CI = (3,4), STDV = 1.15.)
- (2) Social tension among people is lower since debriefings are in process. (MED = 3, CI = (2,3), STDV = 1.29.)
- (3) I feel comfortable to speak during the debriefing about my mistakes. (MED = 4, CI = (3,4), STDV = 1.12.)
- (4) There is a great improvement in the relationships between new recruits and experienced personnel. (MED = 2, CI = (2,3), STDV = 1.18.)
- (5) We have helped each other more since the debriefing process began. (MED = 3, CI = (2,4), STDV = 1.30.)
- (6) There is no connection between debriefing and morale. (MED = 3, CI = (3,4), STDV = 1.45.)

b. Enlisted Questionnaire, Three Squadrons Comparison

- (1) I am very pleased with the morale we have (#1 > #2, #1 > #3.)
- (2) The relationships among the guys in my shop are excellent. (#1 > #2, #1 > #3.)
- (3) The relationships among the guys in the whole maintenance section are very good.
- (4) The guys willingly help each other at work. (#1 > #2.)
- (5) The relationships between seniors and juniors are very good.

c. Line and Departments Chiefs (LC/DC) Questionnaire in Squadron #1 (N = 8)

- (1) Since the debriefing process began, the work interrelationships among LC/DC's have improved. (MED = 3, CI = (2,5), STDV = 1.07.)
- (2) The work interrelationships among the senior personnel, have nothing to do with the debriefings. (MED = 4.5, CI = (4,5), STDV = .89.)
- (3) The debriefings have not changed the working relationships between the MSC and LC/DC's. (MED = 4, CI = (2,5), STDV = 1.13.)
- (4) The officers changed their behavior since the debriefing process began. (MED = 2, CI = (1,3), STDV = .76.)

d. Discussion Regarding Hypothesis (3)

Both enlisted personnel and LC/DC's have not perceived the respective debriefings as improving their interrelationships (a.4;c.2). The enlisted personnel have perceived the environment to be free enough and allows one to speak in public about his own mistakes at work.

It could be hypothesized that the officers would change their behavior somehow as a result of the exposure to critics. However, the data have indicated exactly the opposite (c.4).

Although the enlisted personnel in squadron #1 have not directly indicated an improvement in interrelationships as a result of the debriefing, it is interesting to note that they have perceived the status of their interrelationships as significantly better than both other squadrons. This fact might be attributed to other external reasons, but in light of this study, it has supported the role of the

debriefing process as hypothesized. The reader should also notice that squadron #1's enlisted have perceived their morale as higher than the other two squadrons, as well as perceiving their mutual collaboration as better than in squadron #2, and about the same as in squadron #3.

The hypothesis regarding improvement of working environment and interrelationships due to the debriefing has been accepted.

4. Hypothesis Number (4)

The debriefing is a vehicle for enhancement of openness and freedom in expressing concerns.

a. Enlisted Questionnaire, Squadron #1

- (1) The debriefing gives me an opportunity to express myself on various subjects. (MED = 4, CI = (4,5), STDV = 1.06.)
- (2) I feel free to express myself in the debriefing. (MED = 5, CI = (4,5), STDV = .77.)
- (3) In many cases, the new recruits do not speak during the debriefing process. (MED = 3, CI = (2,4), STDV = 1.44.)
- (4) My opinion is always sound during the debriefing although not popular. (MED = 3, CI = (3,4), STDV = 1.17.)
- (5) In my opinion, not everybody feels free to speak in the debriefing. (MED = 3, CI = (2,4), STDV = 1.40.)
- (6) I could always say whatever I felt, now as well as before the debriefing process has been established. (MED = 4, CI = (4,5), STDV = 1.33.)
- (7) Since the debriefing began my peers started to openly say how they really feel. (MED = 3, CI = (2,4), STDV = 1.32.)

b. Enlisted Questionnaire, Three Squadron Comparison

- (1) I feel free to express myself on every occasion. (#1 > #2, #1 > #3.)
- (2) The guys inform the MSC about their personal problems. (#1 < #3, #1 > #2.)
- (3) It is difficult for me to find an opportunity to express myself to my commanders. (#1 < #2, #1 < #3.)
- (4) There are many unpleasant issues I would like to tell my LC/DC, but I don't find the right occasion. (#1 < #2, #1 < #3.)

c. Line and Department Chiefs (LC/DC) Questionnaire in Squadron #1 (N = 8)

- (1) I feel comfortable to express myself even if my opinion is different from the MSC's. (MED = 4, CI = (2,5), STDV = 1.31.)
- (2) The MSC does not allow us to speak freely in the debriefing. (MED = 1, CI = (1,1), STDV = 0.)
- (3) In spite of the debriefings, not all of the LC/DC's feel free to say what they really believe. (MED = 3.5, CI = (1,4), STDV = 1.31.)
- (4) The debriefing creates an obligation to speak about my men's problems and mistakes. (MED = 4, CI = (2,5), STDV = .99.)

d. Discussion Regarding Hypothesis (4)

Squadron #1 enlisted personnel have felt free to express themselves in the debriefing (a.2), but have noted that they had that freedom before the debriefing process as well (a.6). It is interesting to note that, on the average, people were much more definitive about themselves and less definitive about others (a.5,7). They have also indicated that the debriefing creates an opportunity to change ideas (a.1), whereas the LC/DCs have noted that the

debriefing has created an obligation to talk about their own lines/departments' errors (c.4).⁷ The three squadron questionnaire has shown a larger perceived freedom and openness in squadron #1 (b.1), as well as better opportunities to inform and discuss problems, opinions or unpleasant issues with commanders (b.3,4). These questions, however, may overlap to some extent with the section about information transfer. Openness of information channels includes both the physical opportunity, which has been addressed in the first hypothesis here, and the more intangible openness of environment. No attempt has been made to completely separate them from each other. Squadron #1 personnel have perceived an easier transfer of concerns to the MSC than squadron #2 and more difficult than squadron #3. These results may be explained by the MSCs' different personalities rather than attributed to other causes.

The hypothesis about the positive contribution of the debriefing to an enhancement of openness and freedom in expressing concerns, has been accepted. The debriefing has seemed to improve the openness of communication between commanders and subordinates either by formally creating the opportunity or by shaping the climate. Openness of

⁷Although the confidence interval is larger than usually acceptable, reviewing the histogram has revealed that four people marked number five, three marked number four, and only one marked number one as the correct answer. In this case, this observation is assumed as an outlier. The numbers in the text body include the outlier.

communication has been found as positively correlated to group effectiveness (O'Reilly and Roberts, 1977), and organizational performance (Indik, et al., 1961, Willits, 1967). Therefore, higher effectiveness and better work performance may be expected as a result of the debriefing process.

5. Hypothesis Number (5)

The debriefing is an educational tool for honesty, and admission of maintenance errors.

a. Enlisted Questionnaire, Squadron #1

- (1) I always talk about my maintenance errors during the debriefing. (MED = 4, CI = (4,5), STDV = 1.05.)
- (2) I know about some people who do not mention their maintenance errors in the debriefing. (MED = 2, CI = (2,3), STDV = 1.39.)
- (3) I hesitate to tell, during the briefing, about my maintenance errors. (MED = 1, CI = (1,2), STDV = .85.)
- (4) A person who talks in the debriefing about his maintenance errors loses credibility. (MED = 2, CI = (1,2), STDV = 1.18.)
- (5) I think that the debriefing encourages people to share their maintenance errors with others. (MED = 3, CI = (3,4), STDV = -1.08.)
- (6) Due to the debriefing, my peers have started to tell the truth. (MED = 3, CI = (2,3), STDV = 1.30.)
- (7) Most of the debriefing participants take advantage of the debriefing to present themselves in a better light. (MED = 2, CI = (1,3), STDV = 1.40.)

b. Enlisted Questionnaire, Three Squadron Comparison

- (1) It is better not to talk about little maintenance errors, because one could lose credibility from that.

- (2) I know that not everyone talks about his maintenance errors. (#1 < #2, #1 < #3.)
- (3) I always inform my supervisors about my maintenance errors.
- (4) If the commanders knew the whole truth they would probably punish us. (#1 > #3.)
- (5) Many incidents at work do not reach the MSC. (#1 < #2.)

c. Line and Departments Chiefs (LC/DC) Questionnaire in Squadron #1 (N = 8)

- (1) Not all of the LC/DC's tell the whole truth in the debriefing. (MED = 3, CI = (1,4), STDV = 1.27.)
- (2) Since the debriefing process began, we have started to talk about issues which were covered before. (MED = 3.5, CI = (1,5), STDV = 1.36.)
- (3) The LC/DC who reveals during debriefing his subordinates errors, receives a low grade on the appraisal because he is actually in charge. (MED = 1, CI = (1,4), STDV = 1.13.)
- (4) The debriefing process has not changed the honesty and sincerity of LC/DCs. (MED = 2.5, CI = (1,5), STDV = 1.49.)

d. Discussion Regarding Hypothesis (5)

The perceived honesty by squadron #1 personnel is relatively high, at least as far as admitting to maintenance errors at work is concerned (a.1,2,3,4,7). It is the writer's interpretation that there is a strong positive relation between admitting to errors and general honesty. Many of the answers to the above questions were indicative of this conclusion. Again, the questions regarding others have not been answered as definitively as those regarding the self (a.5,6). However, the reader should note that participants have not perceived the debriefing as a

manipulative tool. Additional support has been provided by the three squadron's questionnaire, where squadron #1 has appeared lower in covering maintenance errors (b.2), and lower than squadron #2 in blocking information from the MSC (b.5). This questionnaire has also revealed a higher perceived punishment in squadron #1 than in squadron #3. This phenomenon might be attributed to the differences in MSCs' characters and is consistent with the previous section where the same pattern emerged.

No specific pattern emerged in the LC/DC's questionnaire with regard to that section, but in the previous section (c.4), additional interpretation of uncovering maintenance errors might be given. In the current section, however, question (c.3) might be attached to the previous section and is also an indication to the trust participants have in MSC's honesty when filling the appraisals.

The hypothesis concerning the educational role of the debriefing to honesty and admission of maintenance errors is partially accepted. The data have supported the admission of the maintenance errors' part of the hypothesis. However, the direct relationship between the admission of errors and honesty has not been adequately addressed or shown. As such, the nature of this relationship is not more than the writer's assumption, and on the basis of that assumption, admission of errors obviously promotes and educates toward honesty.

6. Hypothesis Number (6)

The debriefing is a tool for performance feedback.

a. Enlisted Questionnaire, Squadron #1

- (1) Since the debriefing has been in process, I have a better idea of what my peers really think of me. (MED = 2.5, CI = (2,3), STDV = 1.29.)
- (2) The debriefing gives me an opportunity to compare my performance to others. (MED = 3, CI = (3,4), STDV = 1.28.)
- (3) Since the debriefing is in process, I know exactly what my immediate supervisor's opinion is about myself. (MED = 3, CI = (2,4), STDV = 1.44.)
- (4) It is a shame that our officers do not participate in our debriefings. (MED = 2, CI = (1,2), STDV = 1.31.)
- (5) I feel that the debriefings allow me to know who is really a good performer and who is not. (MED = 2, CI = (2,3), STDV = 1.30.)
- (6) The debriefing does not contribute to my self esteem, I have always known my true performance. (MED = 3, CI = (2,3), STDV = 1.27.)
- (7) The debriefing gives me an opportunity to tell others when they are wrong. (MED = 3, CI = (3,4), STDV = 1.26.)

b. Enlisted Questionnaire, Three Squadron Comparison

- (1) I know my LC/DC's and MSC's opinion about myself.
- (2) The way the MSC appraises me is incorrect because he does not see me at work.
- (3) I always know when I am alright and when I'm not, my LC/DC always tells me.
- (4) I don't know what my peers feel about me.
- (5) Everyone in my line/department knows what I feel about him.

c. Line and Departments Chiefs (LC/DC) Questionnaire in Squadron #1 (N = 8)

- (1) The debriefing creates an opportunity to compare my line/department to others. (MED = 4, CI = (1,5), STDV = 1.81.)
- (2) Since the debriefing process began I know exactly what others feel about me. (MED = 1, CI = (1,2), STDV = .55.)
- (3) The debriefing creates an opportunity to acquaint my peers with my opinions. (MED = 4, CI = (2,5), STDV = 1.03.)
- (4) Before the debriefing process was established, I always said whatever I thought. (MED = 5, CI = (4,5), STDV = .53.)
- (5) Since the debriefing process began the LC/DCs feel more comfortable in telling the truth. (MED = 4, CI = (2,5), STDV = 1.07.)

d. Discussion Regarding Hypothesis (6)

The hypothesis about the debriefing role in performance feedback has not been supported by any of the above groups. In fact, in some cases participants explicitly noted the opposite (a.5;c.2). In addition, enlisted personnel have noted that they preferred to perform the debriefing sessions without their officers (a.4). It seems that they have preferred a more informal and open environment.

The reader should note that feedback in the context of the above questions refers solely to one specific dimension of feedback; namely, the appraisal of the individual's performance and the extent to which it has been fed back to the individual. A broader view of feedback has been discussed in the feedback literature review (Chapter III).

Within the framework of that Chapter I's definitions, the proposed debriefing is a form of feedback by definition. In that literature review, some characteristics and attributes of feedback have been defined, yet not directly addressed in this field study. Generally speaking, the literature review has conveyed at least one clear message: The performance feedback is desirable, although no agreement exists about its characteristics. The writer has tended to accept the functional approach to feedback rather than the structural (Ducan and Bruwelheide, 1986), and as such, a broad agreement exists about its positive contribution. If the broader approach to feedback is accepted, then the debriefing session is defined as a feedback process and hence, the debriefing process is desirable.

The surprising reaction of participants to the feedback capacity of the ongoing debriefing process (in its narrow context) may be attributed to the subjects which are currently debriefed. It also can be attributed to the lack of experience and skill. As noted earlier, the debriefing of the aircrew's section does serve an important feedback role (in the narrower context). Therefore the contradicting results in the maintenance section are surprising.

The hypothesis about the feedback role of the debriefing (in its narrow meaning, namely, appraising individual performance) has not been accepted. In its broader view, the debriefing is a feedback session by

definition. Although not directly addressed in this field study, feedback has been proved to be desirable as noted in Chapter III.

7. Hypothesis Number (7)

Participants appreciate the debriefing process in general.

a. Enlisted Questionnaire, Squadron #1

- (1) Most of the debriefing time is wasted on marginal issues. (MED = 1, CI = (1,2), STDV = 1.16.)
- (2) The debriefing wastes time, therefore we finish work too late. (MED = 1, CI = (1,2), STDV = 1.23.)
- (3) I don't like the debriefings. (MED = 1, CI = (1,2), STDV = 1.32.)
- (4) Our maintenance-section has improved its performance since the debriefings have been in process. (MED = 3, CI = (3,4), STDV = 1.33.)
- (5) Only guys without that high workload have the time for debriefings. (MED = 1, CI = (1,1), STDV = .84.)
- (6) In general, the debriefing is a good idea. (MED = 4, CI = (4,5), STDV = 1.01.)
- (7) Debriefings are not suitable for the maintenance section, I believe. (MED = 1, CI = (1,2), STDV = 1.25.)
- (8) We work more efficiently as a result of the debriefing process. (MED = 4, CI = (3,4), STDV = 1.11.)

b. Line and Departments Chiefs (LC/DC) Questionnaire in Squadron #1 (N = 8)

- (1) Generally speaking, it is better to stay with my subordinates in the line/department than to waste the time in the MSC forum debriefing. (MED = 1, CI = (1,4), STDV = 1.29.)
- (2) The MSC's debriefings do not help very much. It is a waste of time. (MED = 1, CI = (1,3), STDV = .92.)

- (3) I don't learn new things in the debriefing. (MED = 1, CI = (1,3), STEV = .78.)
- (4) I believe that the LC/DC's teamwork has improved due to the debriefing. (MED = 2, CI = (2,5), STDV = 1.46.)
- (5) I think the atmosphere in our squadron has not been changed due to the debriefings. (MED = 3, CI = (2,5), STDV = 1.13.)

c. Discussion Regarding Hypothesis (7)

The general appraisal part to the debriefing process is the most prominent in its trend, namely, the high appreciation for the debriefing process. Generally speaking, the enlisted have believed that it is not a waste of time (a.2,5;b.1)⁸ and the time has not been wasted on marginal issues (a.1). LC/DCs have felt that the debriefing has contributed somehow (b.2), and they have learned new things during their debriefings (b.3). Enlisted personnel have been extremely satisfied (a.3,7) with their debriefings and have perceived their performance at work as more efficient (a.8). As a summary of their attitudes toward the debriefing process, the enlisted have indicated that it has been a good idea (a.6).

The data presented have shown an extremely positive attitude of the enlisted personnel toward the ongoing debriefing process, and a tendency to recognize the efficiency of debriefings in terms of time usage. Hence,

⁸Although the confidence interval is too large to be usually acceptable, the histogram shows that five responses were as high as five, one marked four as the correct answer, and one marked the three option. It is believed that a positive trend has emerged from that data.

the hypothesis regarding participants' positive attitudes has been accepted.

8. Technical Procedures

Procedural aspects of the debriefing are addressed below.

a. Length of a Good Debriefing Session

The perceived good debriefing session should last about 20 minutes ($STDV = 1.036$). However, Prue and Fairbank (1981) have stated that the feedback duration is a function of the content and the mechanism employed. Therefore, the 20 minutes length should be taken only in the context of the ongoing debriefing. If any change is to occur in content or mechanism used (mechanical devices or the like), the length of the debriefing may be changed accordingly.

b. Frequency of the Debriefing

The debriefing should take place every day ($STDV = 1.54$). The most consistent effectiveness has been found by Balcazar et al., (1986) to be relatively immediate feedback. This finding may support the desired frequency as noted by participants.

c. Appropriate Timing

The appropriate time for debriefing is when the last flight has landed each day ($STDV = .88$).

d. Subjects for Maintenance Section Debriefing

The subjects for debriefings have been addressed in the open-ended part of the LC/DC's, enlisted, and Co/ MSC's questionnaire, and a summary of the answers is provided here. Most of squadron #1's enlisted personnel have noted that problems and maintenance errors within and between shops should be debriefed, as well as major malfunctions and the way they had been treated. Many enlisted have noted the need to debrief the work procedures in terms of requirements vs. actual performance, informational type issues such as events in other shops, and more soft type issues such as social interrelationships, relations between air-crews and maintenance-crews, people feelings, work environment, etc.

The CO's and MSCs have emphasized the need to debrief the daily tasks and timing fulfillments, exceptional events, major malfunctions and their treatments, daily routine management and the like. One of them has noted that opening the stage for general discussion at the end of the session is desirable.

Three out of the seven LC/DCs have added that their debriefing with the MSC should be shorter, to enable them to meet with their subordinates for the immediate relay of the information.

The feedback literature which has been reviewed earlier has supported most of the recorded results.

According to the literature, a notice should be given to the submission of accurate and specific information about performance in quantitative figures, if possible. A comparison of actual performance to standards is recommended by both the literature and participants.

e. Attitude Toward Participation of Maintenance Officers in the Line/Department's Debriefing

Participation of officers in the line/departments' debriefings has been strongly rejected by the enlisted personnel. The identity of the participants in a feedback session is a subject which has been addressed in the feedback literature review. According to that literature, the performer(s) should participate. However, the publicity of feedback is a function of many factors; such as the sensitivity of the messages, the number of performers, openness and climate, etc. Participants in the debriefing session obviously consider who are the other participants before they "speak their minds" in that forum. These factors should be taken into consideration.

f. The Right Forum for the Debriefing

Almost all responses to that question, including CO/MSCs, have agreed that regular forums must consist of lines and departments respectively, and LC/DCs with officers as a higher level forum for debriefing. Some enlisted noted the need for comprehensive debriefing for the entire maintenance section on a weekly basis.

The previous section (concerning participants of a debriefing session) is assumed to be closely related to this section.

g. Open-ended Question Asking for Additional Comments and Suggestions

Most of the comments by other enlisted personnel have been addressed in the sections above. However, CO/MSCs have viewed the idea very positively and have determined it to have the following advantages: (1) improvement of maintenance standards; (2) mutual learning; (3) better openness, morale, and working climate; and (4) cohesiveness. It is interesting to note that one MSC had amplified the problem of maintenance personnel with respect to the way they regularly debrief performance and react to maintenance errors at work, and has recognized the debriefing process as a tool to educate the people in a desired direction.

As to the "cost-benefit" side of the proposed debriefing, most of the CO/MSCs have viewed the idea positively, although the "right" frequency has varied across squadrons, and skepticism about the practicality of the idea, have been expressed by squadron #3's CO.

B. GENERAL DISCUSSION

In this study, an attempt to identify and test some of the attributes and the characteristics of the debriefing process has been made. As in the case of feedback, the ability or the need to analyze and understand the separate

components of the debriefing process may not be the most important issue. If the debriefing is accepted as a feedback session, it might be suggested as in the case of feedback, to look at the debriefing's outcomes and effects rather than its structural aspects.

One might view the debriefing as "quality circles." The participation of employees for improvements is encouraged. The group discussion is a means for enhancement, and the future performance and quality are the targeted issues while assessing past performance or situations. Reliance on participants' collaboration is crucial for effectiveness and as such, an open climate is vital for success. However, some differences exist. The quality circles are a voluntary activity whereas the debriefing is not. The scope of the quality circles is limited to enhancement of quality whereas the scope of the debriefing is broader. The most significant difference may be the principle of quality circles; namely, using the talents of the employees to improve the product and productivity, whereas the principle of debriefing is to improve and educate the participants themselves, in hopes of a positive outcome.

Communication aspects of the debriefing have been mentioned in the discussion regarding the transfer role and the openness enhancement role of the debriefing. The debriefing, as mentioned, creates an opportunity to communicate. One might attribute the overall strong favorable

attitude toward the debriefing to the improvement in openness of communication. The correlation between openness of communication and performance was addressed by Jablin (1979). He has concluded that the better the communication, the higher the satisfaction. He has emphasized the openness of communication between superiors and subordinates, and the favorite impact of open communication on both parties. He has also noted that face-to-face communication is the most satisfactory type of communication. The above discussion may very well explain the favorite attitudes of participants toward the debriefing sessions. The same logic may also support the idea of the debriefing as a tool to enhance performance.

The influence on behavior is not only in the downward direction. The literature has indicated that influence goes in both directions (Podaskoff, 1982; Jablin, 1979). Upward communications have been traditionally perceived as more problematic in terms of ability to communicate and openness. The debriefing obviously creates a situation where upward communication is more likely to happen. This, in turn, may satisfy subordinates, influence behavior of both parties, and promote quality performance.

Greller and Herold (1975) suggested that the quality of the feedback source is a function of the psychological proximity between the source and the subjected person.

Other researchers (Ivancevich and McMahon, 1982) have found the "self" as a higher efficient source of feedback.

It is suggested to employ the self-debriefing method in the debriefing sessions as the prime method. This strategy is successfully employed by the aircrew sections, and logically would serve as an educational tool for honesty in the maintenance sections as well. General Amos Lapidot, the previous IAF commander, has mentioned:

Above and beyond the excellent manpower we have in the IAF, our debriefing culture should be noted. This culture consists of honest debriefing, accurate, objective, and without "stories"...the basic education is in the squadron level; when the debriefing session starts, the pilot says: "my mistakes today were such and such." First he notes his own mistakes. This is the best education to get improved and to know the exact truth every moment, without wishful thinking facts, I believe. (Ben-Akiva, 1988)

His predecessor, General David Ivry, has said in the same symposium:

The IAF ability to debrief every flying cadet and pilot is an extremely high qualitative dimension. It begins in the education of the officers who latter become commanders, and requires such debriefing from others. This is a unique process to the IAF. (Ben-Akiva, 1988)

The last two quotes demonstrate, maybe more than anything else, the attitude of the highest level command to the debriefing concept in general, and to the process of self-debriefing, in particular. The principles underlying the aircrews debriefing may be valid in the case of the maintenance section as well, is the writer's belief. If that is the case, there is no reason why the debriefing process

would not be adopted to all maintenance sections throughout the IAF.

C. SUMMARY

In this chapter, hypotheses regarding the ongoing debriefing processes have been tested and questions concerning their results have been presented and discussed along with the relevant theories. The field study hypotheses and their respective interpretations are summarized below:

- (1) The debriefing is a vehicle for the transfer of information from the top-down and bottom-up within the maintenance section. This hypothesis has been accepted.
- (2) The debriefing is a tool for mutual learning and professional enhancement. The mutual learning part has been accepted and the professional enhancement part has not been accepted.
- (3) The debriefing is a vehicle for enhancement of the working environment and the relationships between individuals in the lines/departments. This hypothesis has been accepted.
- (4) The debriefing is a vehicle for enhancement of openness and freedom in expressing concerns. This hypothesis has been accepted.
- (5) The debriefing is an educational tool for honesty and admission of maintenance errors. The part regarding the admission of maintenance errors has been accepted and the part regarding the educational tool for honesty has not been adequately addressed, and therefore, only assumed to be true.
- (6) The debriefing is a tool for performance feedback. This hypothesis has not been accepted. However, performance feedback has been interpreted in both narrow and broad senses, and it has been argued that the debriefing in its broad sense is a form of feedback by definition, and as such--desirable.

- (7) Participants appreciate the debriefing process in general. The hypothesis has been accepted with rigorous confidence.

Some procedural aspects and their outcomes have been addressed and the following general subjects have been discussed:

- (1) Viewing the debriefing as a whole rather than partitioning it by its characteristics;
- (2) Comparison of quality circles with the debriefing;
- (3) Communication and debriefing; and
- (4) The self-feedback as a normal routine in debriefing.

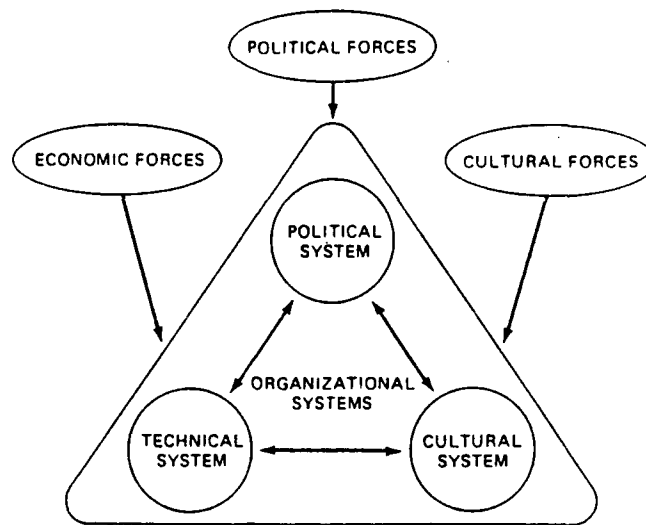
On the basis of the above analysis, conclusions and recommendations will be offered in the last chapter. The implementation stage of the debriefing, based on the positive general attitude discussed here, will follow this.

VI. IMPLEMENTING THE DEBRIEFING PROCESS, MANAGING THE CHANGE

A. LITERATURE REVIEW

Organizational change can be viewed from several perspectives. One can look at the overall organization and apply a systematic analysis to the problems which leads to a major organizational change. This type of change is typically referred to as a strategic change. Strategic change has been discussed and analyzed thoroughly in Tichy's book (1983), Managing Strategic Change. Tichy views the organization as composed of three systems: technical, political and cultural. According to his approach, strategic change should include an intervention in each of these three systems separately. The organizational strategy, structure and the like, may be used to align the three systems with each other and with the larger environment. Harvey and Brown (1988, p. 391) have illustrated Tichy's concept using the "Environmental Forces and Organizational Systems" model (Figure 1).

Harvey and Brown (1988, p. 154) concur with Tichy (1983), using somewhat different terms: "Changing an organization involves modifying existing organizational systems, structure, and culture to some different standard or level of performance."



Source: From N. Tichy, "Strategic Change Management" (Working Paper, GSBA, The University of Michigan, April 1982), p. 17.

Figure 1. Environmental Forces and Organizational Systems

Focusing on a smaller part of the organization, one could look at the sub-organization as an independent entity, as far as strategic change is concerned. When the change becomes more and more local and narrow in nature, the title "strategic" becomes somewhat "operational." Most organizations are composed of sub-units where changes may take place. Limiting the scope of an intended change to more minor ones may create some ambiguity and confusion regarding the definition of "Strategic Change."

Beer and Huse (1972) have suggested a model for organizational change (Figure 2). This model views the organization as an "open system which, from the human point of view, converts individual needs and expectations into outputs." (Beer and Huse, 1972) They have suggested that organizational performance may be improved through an improvement of the conversion process (i.e., better utilization of the human potential), as opposed to an improvement due to better inputs (i.e., higher quality of personnel).

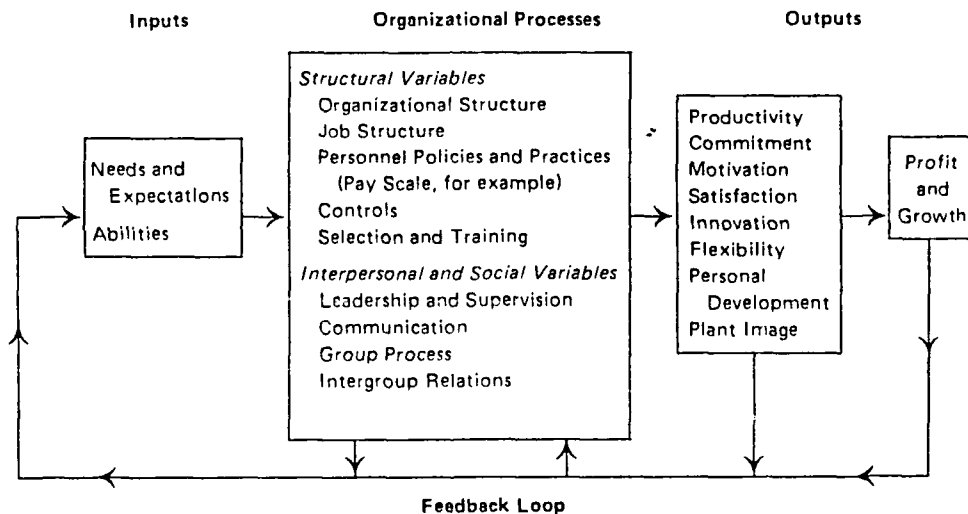


Figure 2. Systems Model of an Organization

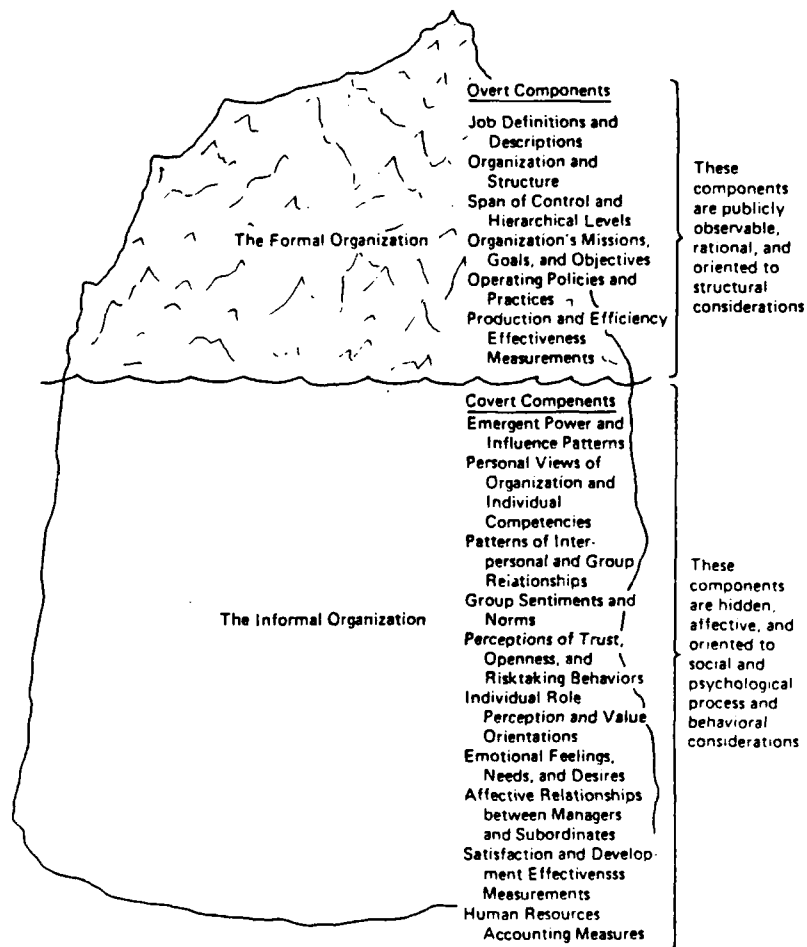
Different approaches to organizational change are presented in the literature. Harvey and Brown (1988, p. 198) have identified three basic approaches: structural,

technical and behavioral. They have emphasized the need for integrated interventions to bring about a successful change. Selfridge and Sokolik (1975) have suggested the comprehensive approach, encompassing technical, structural and behavioral aspects of the system. They have proposed the "iceberg" analogy to OD, composed of two groups of components: the easily observable portion (overt) and the more hidden parts (covert) (see Figure 3). They have stressed the need to look at all the components of the organization when dealing with a change.

They have emphasized that one often examines only the overt and visible aspects of the organization and fails to consider the more hidden problem areas. Their model presents both the overt and covert components which should be considered in the diagnosis phase.

Most writers are looking at change as a transition from one existing state to another desirable one. Tichy has emphasized the systems and the processes involved, while Harvey and Brown (1988) have summarized various approaches while concentrating on the OD consultant role in the process. Beckhard and Harris (1972) have tended to be concerned more with the transition itself without limiting the discussion to any sort of change in particular.

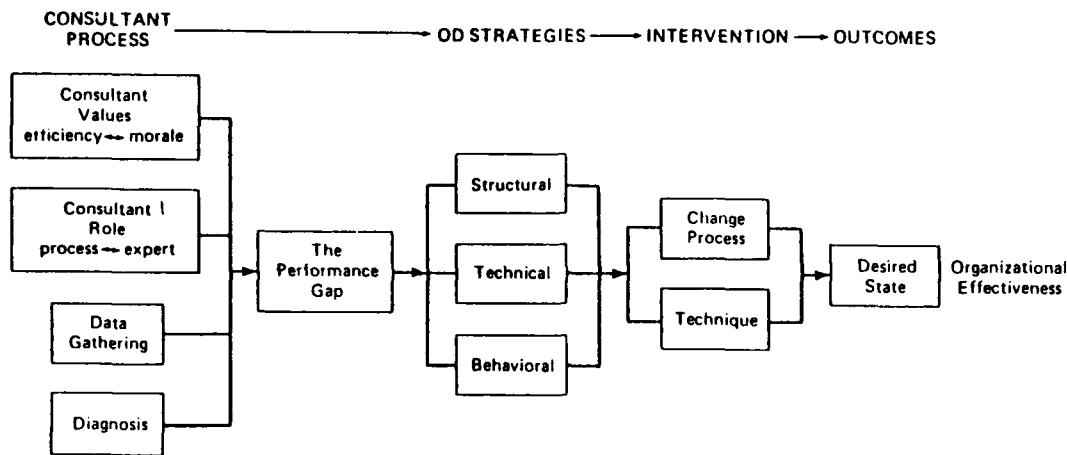
Looking at the OD Process offered by Harvey and Brown (Figure 4), we can identify the basic steps of the change management: data gathering, diagnosis, gap between current



Source: Adapted from Richard J. Selfridge and Stanley L. Sokolik, "A Comprehensive View of Organizational Development," M.S.U. Business Topics, Winter 1975, p. 47.

Figure 3. The "Organization Iceberg" Approach to OD

state to desired, interventions, and reaching the desired state.



Source: (Harvey and Brown, p. 197)

Figure 4. The OD Process

Although different authors differ somewhat in the terms or order of implementation they suggest, they basically agree on the principals. Looking at "The Change Management Process" model of Beckhard and Harris (Figure 5), we can identify these similarities. The model presented here is a summary overview of the stages and points described in their analysis.

The Beckhard and Harris (1987) model enables one to restrict the focus even further and concentrate solely on the Transition phase, which is the main focus of this paper. More specific discussion will be devoted to the two areas emphasized in the rectangles at the bottom, namely, "Getting from Here to There" and "Managing During the Transition State."

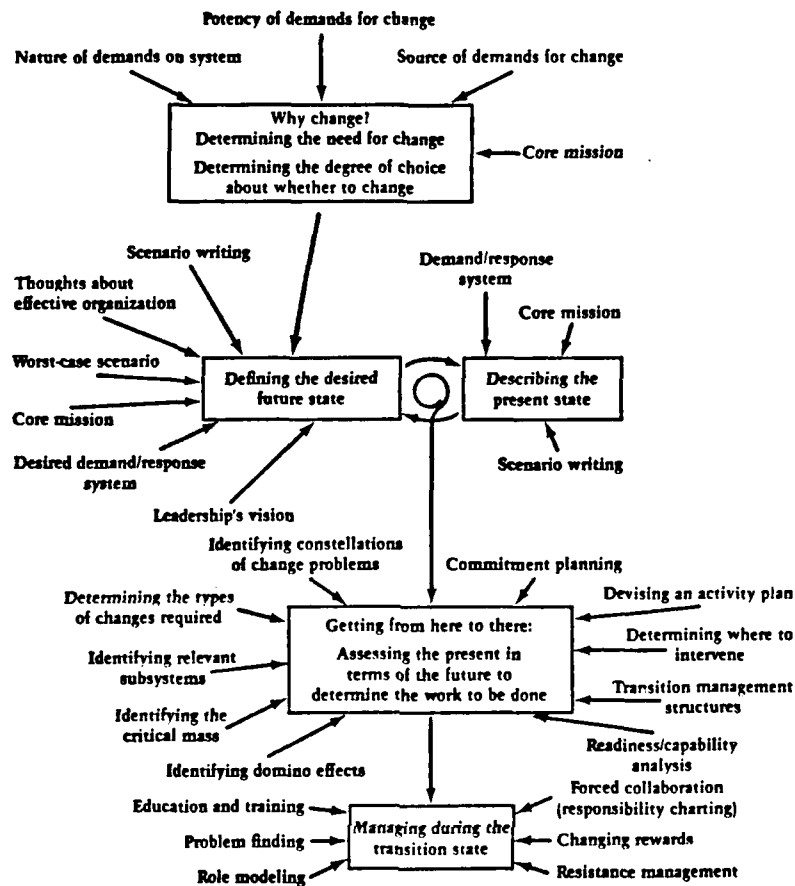


Figure 5. The Change Management Process

Tichy (1983) believes that the transition state "consists of predicting, channeling, guiding, and altering the technical, political, and cultural cycles in order to arrive at the desired state strategy." (Tichy, 1983, p. 333)

Beckhard and Harris (1987) are much more specific and practical, and suggest several alternative structures for managing the transition (Beckhard and Harris, 1987, p. 76):

The Chief Executive--who is personally involved and manages the change.

The Project Manager--who receives his power from the CEO.

The Hierarchy--is an approach which consists of additional responsibility to the regular operation managers.

Representatives of Constituencies--where a group of representatives from each relevant area manage the change.

"Natural" Leaders--usually as close as possible to the actual change and are willing to commit themselves to that change.

The "Kitchen Cabinet"--where the CEO has a few colleagues who informally meet and discuss work problems.

A great deal of attention has been paid in the literature to the question of how to manage the transition stage. Rogers (1983) has examined the characteristics of the innovation and assessed the characteristics of the early adopters as well as the change agent. He has suggested the following attributes of innovations, and emphasized the importance of the individual's perception of these characteristics (Rogers, 1983, p. 238).

Relative advantage is the degree to which an innovation is perceived as better than the idea it supercedes. The relative advantage of an innovation, as perceived by members of a social system, is positively related to its rate of adoption.

Compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experiences and needs of potential adopters. The compatibility of an innovation, as perceived by members of a social system, is positively related to its rate of adoption.

Complexity is the degree to which an innovation is perceived as relatively difficult to understand and to use. The complexity of an innovation, as perceived by members of a social system, is negatively related to its rate of adoption.

Trialability is the degree to which an innovation may be experimented with on a limited basis. The trialability of an innovation, as perceived by members of a social system, is positively related to its rate of adoption.

Observability is the degree to which the results of an innovation are visible to others. The observability of an innovation, as perceived by members of a social system, is positively related to its rate of adoption.

Rogers (1983, pp. 257-258) has tried to categorize the personality variables of the early adopters:

- (1) Earlier adopters have greater empathy than later adopters.
- (2) Earlier adopters may be less dogmatic.
- (3) Earlier adopters have a greater ability to deal with abstraction.
- (4) Earlier adopters have greater rationality.
- (5) Earlier adopters have greater intelligence.

- (6) Earlier adopters have more favorable attitude toward change.
- (7) Earlier adopters are more able to cope with uncertainty and risk.
- (8) Earlier adopters have a more favorable attitude toward education.
- (9) Earlier adopters have a more favorable attitude toward science.
- (10) Earlier adopters are less fatalistic.
- (11) Earlier adopters have a higher level of achievement motivation.
- (12) Earlier adopters have higher aspirations.

Rogers (1983, p. 343) has also found that a change agent's relative success in securing the adoption of innovation by clients is positively related to:

- (1) The extent of change agent effort in contacting clients.
- (2) A client-orientation.
- (3) The degree to which the diffusion program is compatible with clients' needs.
- (4) The change agent's empathy with client.
- (5) His or her homophily with clients.
- (6) Credibility in the client's eyes.
- (7) The extent to which he or she works through opinion leaders.
- (8) Increasing climate's ability to evaluate innovations.

Harvey and Brown (1988, p. 85) have compared the advantages and disadvantages of internal and external consultants, but did not devote much discussion to changes to be achieved by a different type of change agent such as a

member of the organization or an internal group. They did, however, mention the supervisor as an internal consultant, and throughout their book, external consultant and OD approach are interchangeable.

According to their method, organizational readiness for change is a prerequisite for a successful OD program. They have listed Bennis' four questions to be asked by the consultant before venturing further (Harvey and Brown, 1988, p. 91):

- (1) Are the learning goals of OD **appropriate**?
- (2) Is the cultural state of the client system **ready** for organization development?
- (3) Are the key people involved?
- (4) Are **members** of the client system adequately **prepared and oriented** to organization development?

Their discussion has devoted a great deal of attention to the involvement and cooperation of top management before such change could be initiated. They have not addressed, however, the question or situation where no such commitment exists or where one or more of the above questions is negatively answered.

Beer and Huse (1972), on the other hand, found that:

- (1) A **clear-cut** commitment to a particular OD approach is not necessary (although desirable) for a successful OD program to succeed.
- (2) Total top management understanding of where the OD process will lead and the state of the organization at the end of that process is not necessary for organizational change to occur.

- (3) Change can and does begin at lower levels in the organization. (partial list of findings)

Rogers (1983, p. 334) has also found that "innovations often bubbled up from the operational levels of a system, with the inventing done by certain users," and hence, has reinforced Beckhard and Huse's findings.

A variety of intervention techniques are available to the change agent whether he or she is an OD practitioner, manager or a member in the organization. Harvey and Brown (1988, p. 207) have listed many of those techniques (Figure 6).

Personal and Interpersonal	Team	Intergroup	Total Organization System
Job design	Team building	Intergroup development	Management by objectives
Job enrichment	Process consultation	Third-party intervention	Goal setting
Laboratory learning	Job enrichment	Organization mirror	Grid OD (phases 4, 5, and 6)
Career planning	Job design	Process consultation	Survey feedback
Goal setting	Quality circles	Grid OD (phase 3)	Action research
Managerial Grid (phase 1)	Role negotiation		Likert's System 4
Stress management	Role analysis technique		Quality of work life
Biofeedback	Grid OD (phase 2)		Decentralization

Figure 6. OD Interventions: An Overview

Beckhard and Harris (1987) have suggested (p. 74): "In targeting an initial intervention, one must identify the most promising early activities and carefully think through their consequences." They also offer some general possible interventions as well as "strongly recommend that the choice

of technology for managing the change be a later rather than an early decision."

The question of where to intervene first is addressed by Beckhard and Harris (1987, p. 73). They have listed the following:

- (1) Top management;
- (2) Management ready systems;
- (3) "Hurting" systems--where acute problems exist;
- (4) New teams or systems;
- (5) Staff;
- (6) Temporary project systems.

They have argued that no "cook book" exists for that choice, however "if one asks questions systematically, one is likely to come up with better judgments and better choices than otherwise."

Beckhard and Harris (1987) have stressed the need for leadership in carrying out a change, especially in terms of personal commitment to the change. A sort of "practices what it preaches."

Beer and Huse (1972) found that "the real potential in organizational development lies in setting in motion such a positive snowball of change, growth, and development." In other words, changes could be initiated in any source within the organization, and be expanded around, if the right conditions and right actions are taken.

Resistance to changes is one of the major obstacles for a successful change. Harvey and Brown (1988, pp. 161-163) have identified the sources of resistance as:

- (1) Fear of the unknown;
- (2) Disruption of routine;
- (3) Loss of existing benefits;
- (4) Threat to position power;
- (5) Conformity to norms and culture.

Tichy (1983, pp. 344-345) has listed the following reasons:

- (1) Resistance due to habit;
- (2) Resistance due to fear of the unknown;
- (3) Resistance due to absence of skills;
- (4) Organization predictability (parallels to individual resistance due to habit);
- (5) Resistance due to sunk costs.

While assessing the current situation regarding the degree of the expected resistance, a change agent may use Harvey and Brown's (1988, p. 157) model (Figure 7).

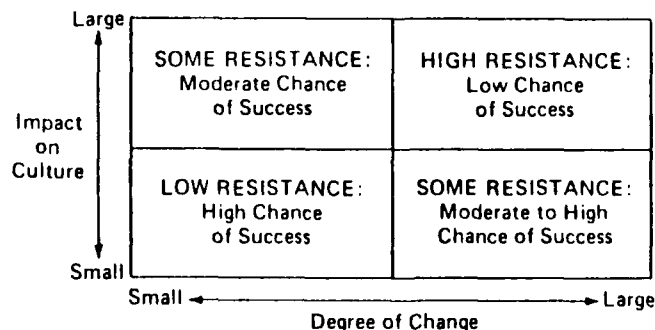


Figure 7. The Change Model

The "culture" is identified by Harvey and Brown (1988, p. 64) as "a system of shared values and beliefs which interact with an organization's people, structure, and systems to produce behavioral norms (the way things are done around here)." Often the terms "culture," "climate," and "norms" are not well distinguished from each other in novice minds. As opposed to the above definition, "climate" is defined by Hellriegel and Slocum (1974, p. 156) as "a set of attributes which can be perceived about a particular organization and/or its subsystems, and that may be induced from the way that organization and/or its subsystems deal with their members and environment." Culture is usually concerned with long term strategy and, therefore, is more difficult to change, whereas climate refers to a shorter term and measures the fit between the prevailing culture and the individual values of the employee.

"Norms" are defined by Muchinsky (1987, p. 358) as "shared group expectations about appropriate behavior."

An appropriate background work as well as facilitation during the change process is highly recommended. Harvey and Brown (1988, p. 164) have listed the methods for dealing with resistance to change (Figure 8).

The above literature review sought to shed some light on the theoretical framework of the proposed change. Many of the surveyed concepts and approaches will be used in assessing the current situation, considering structural and social

Approach	Commonly used when ...	Advantages	Disadvantages
1. Education & Communication	There is a lack of information or inaccurate information and analysis.	Once persuaded, people will often help implement the change.	Can be very time consuming if many people are involved.
2. Participation & Involvement	The initiators do not have all the information they need to design the change, and others have considerable power to resist.	People who participate will be committed to implementing the change, and any relevant information they have will be integrated into the change plan.	Can be very time consuming if participants design an inappropriate change.
3. Facilitation & Support	People are resisting because of adjustment problems.	No other approach works as well with adjustment problems.	Can be time consuming, expensive, and still fail.
4. Negotiation & Agreement	Some person or group with considerable power to resist will clearly lose out in a change.	Sometimes it is a relatively easy way to avoid major resistance.	Can be too expensive if it alerts others to negotiate for compliance.
5. Manipulation & Co-optation	Other tactics will not work, or are too expensive.	It can be a relatively quick and inexpensive solution to resistance problems.	Can lead to future problems if people feel manipulated.
6. Explicit & Implicit Coercion	Speed is essential, and the change initiators possess considerable power.	It is speedy and can overcome any kind of resistance.	Can be risky if it leaves people angry with the initiators.

Source: Harvard Business Review. An exhibit from "Choosing Strategies for Change," by John A. Kotter and Leonard A. Schlesinger, March/April 1979.

Figure 8. Methods for Dealing with Resistance to Change

factors, and evaluating ways to successfully implement the change, namely the debriefing process.

B. THE ACTUAL SUGGESTED TRANSITION MANAGEMENT

Based on the theory and the writer's experience, and within the concepts, approaches and definitions briefly described earlier, a discussion about the implementation

aspects of the debriefing process in the maintenance sections of the IAF will be offered.

According to the traditional approach supported by Harvey and Brown (1988), a total understanding and commitment of the highest command levels is necessary before an attempt to implement such change throughout the entire IAF may be initiated. The writer is in favor of the Beer and Huse's (1972) approach because of: (1) their findings regarding the possible successful change without such commitment (noted earlier); (2) the writer's long experience in the Israeli Air Force has shown that fruitful innovations do stem from the bottom and can have a snowball effect, horizontally and vertically throughout the entire air force. As noted earlier, this approach is also supported by Rogers (1983).

A squadron is a relatively independent unit and has the ability to carry out changes such as the proposed debriefing in a successful manner. Knowing the climate and culture of a squadron, the writer believes that the change agent must be internal. In most cases the squadron commander (CO) and the Maintenance Section Commander (MSC) have the necessary credibility and most of the other characteristics noted earlier in Rogers' lists, to successfully play the role of the change agent. Looking back at the "Alternative Structures" of Beckhard and Harris (1987) described earlier, it is suggested that "The Hierarchy" structure be used for

managing that transition, namely, the existing chain of command of the squadron. For the entire IAF, the "bottom-up" concept is still valid, although not recommended for the squadron level. Any position below the MSC level may not have sufficient power for a successful change.

1. Evaluation of the Current Situation

Using Harvey and Brown's (1988, p. 154) model (Figure 9), a discussion of the forces to be considered while instituting the change, is offered below.

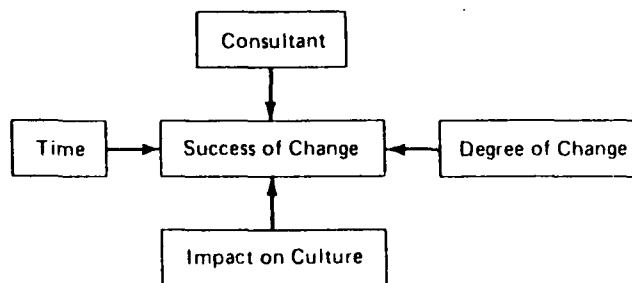


Figure 9. Change Forces

The consultant (change agent), who is the CO or MSC in this case, has a tremendous influence on the outcomes. The "Degree of Change" is not very large in terms of the structural/procedural aspects, but has high impact on the culture. Thus a great deal of attention should be paid to that factor. The "Time Frame" can not be too long because of the nature of the change. Once the preparations are

completed and the process has been started, the maintenance of momentum should be stressed and facilitated.

As previously noted, resistance is a major obstacle to any change and toward a cultural one in particular. Reviewing Harvey and Brown's (1988) model (Figure 7), the writer would place the debriefing process in the upper left corner which consists of some resistance and moderate chance of success. It brings about the unavoidable conclusion that a careful analysis, planning and implementation should be undertaken. Beckhard and Harris (1987, p. 95) have suggested the Commitment Chart (Figure 10) which the change agent may use for a better visualized analysis of the key players in the squadron.

Key Players	No Commitment	Let It Happen	Help It Happen	Make It Happen
1.		X →		→ O
2.		X →	→ O	
3.		X →		→ O
4.		O ←	← X	
5.			(XO)	
6.	X →	→ O		
7.		X →		→ O
8.		(XO)		
9.	X →		→ O	
10.			O ←	← X

Source: (Beckhard and Harris, 1987, p. 95)

Figure 10. Sample Commitment Chart

In Figure 10, "X" stands for the present degree of commitment, and "O" indicates the minimum necessary commitment for the change to occur. The arrows represent the work required.

In his efforts to ensure as much commitment as possible, the change agent may adopt the "Personality Variables" of the early adopters as suggested by Rogers (1983) and reviewed earlier.

"A major factor in resistance to innovation is that reorganization invariably implies a redistribution of power and influence." (Harvey and Brown, 1988, p. 162) Exposure of key players such as MSC, LC/DC and Crew Chiefs to possible adverse comments and criticism from peers and subordinates may be threatening enough to discourage their collaboration. However, their collaboration is a crucial factor for the program to succeed.

A critical mass of the above key players should be assembled to assure forward movement of the "snowball." The writer's experience shows that the vast majority of the LC/DC's must be committed to the change to ensure success.

Assessment of the innovation itself, using Rogers' "Innovation Characteristics" (Rogers, 1983, p. 238) shows the following analysis.

Relative Advantage: Although the relative advantage is sound, the writer believes that participants in the program may not foresee it at first glance. Information to

ensure total comprehension of the idea, the principles, and the implicit thrust of the problem on issue should be transferred and shared across the lines and along the processes.

Compatibility: Is pretty good with the existing structured procedures, but some adjustments still may take place and affect the existing routines. As far as the cultural aspect of the change is concerned, it is more like a mind-set revolution than a small shift.

Complexity: Again, the mind-set change is complex, and assessment efforts should be dedicated to it.

Trialability: It is not one of the physical innovations which one can try once and then make up his mind. A complete commitment to the change by the key players must be incorporated with the decision to "try" (implement).

Observability: Is not sufficient in terms of real observation. On the other hand, success or failure in one squadron will probably be conveyed to other squadrons through the formal and informal channels available.

2. Suggested Strategy

As noted throughout the readings, a great deal of emphasis should be devoted to the cultural and working climate issues. The writer is strongly convinced that the key for successful implementation of the debriefing process is really hiding in these factors. Most of the efforts,

therefore, should be directed toward them. "Most managers underestimate the amount of communication needed, so it is better to use 'overkill' than to understate the situation." (Harvey and Brown, 1988, p. 164)

Potential resistance should be recognized and treated at every possible front. There is not "only one right way" to successfully overcome resistance. The change agent may make use of the models listed above, and determine his own way, consistently, with his assessment of the situation. The writer, however, would choose the first three methods listed in Harvey and Brown's (1988) table (Figure 8). It is strongly recommended to emphasize participation and involvement. These factors have been proven practically over and over again as efficient and promising means of gaining commitment (Harvey and Brown, 1988, pp. 164-165, 312-313; Stoner and Wankel, 1986, p. 359; Beer and Huse, 1972).

Participation could be encouraged by simply using the subordinates' experience, expertise and creativity to discuss the issue and its technical aspects such as methods to use, routines, schedules, procedures, etc.

Note, collaboration of key players is crucial! Assessment and facilitation of the process is vital all along. Periodic meetings of the CO with the MSC and the LC/DC's to "debrief the debriefing" is highly recommended on

a monthly basis at the beginning. This routine may enhance the participation and "ownership" of feelings as well.

Collaboration may be insured by inviting key players such as LC/DCs to occasionally participate in the aircrews' mass debriefing. This may demonstrate to them how a good debriefing should be performed, and may help them to realize the desirable degree of openness, honesty and idea sharing.

Once a decision to implement the process has been made, it should be properly announced as the goal of the squadron for the coming training term. It should be properly emphasized in the weekly schedule, and assured that it actually be done as scheduled. At the run-up phase, first priority should be assigned to it.

Encouragement of natural leaders among the personnel and ensuring their collaboration could be extremely helpful. This can be done by face-to-face interviews either by the CO or the MSC. Beer and Huse (1972, Finding No. 6), have emphasized that practice as well as "Internal change leaders are natural targets for the change agent, since they become influence leaders and help to shape the culture."

Encouragement during the process is a good practice. As Harvey and Brown (1988) have noted (Figure 8, Approach #3), Facilitation and support are important to assist in adjusting behavior and attitudes. It is recommended to meet with considerable frequency with the LC/DCs, and let them evaluate their performance as debriefing leaders. It is

suggested that they discuss their difficulties, thoughts, and feelings; to encourage and support, to provide backing and to share their own experience. The LC/DCs certainly need such support at that stage.

Expectations should not exceed what is realistic. "Organization change occurs in stages: a stage of unfreezing and trust building, a take-off stage when observable change occurs, and a re-stabilization stage. Then the cycle iterates." (Beer and Huse, 1972, Finding #7) Although the debriefing process may run smoothly from the technical perspective, real internal quality may not be expected to be high at the beginning. These changes take time. Confidence should be built and cultural change should occur, therefore, patience and faith are needed. The change agent should keep in mind that the proposed pilot program has already been implemented and in fact, enlisted, as well as the squadron commanders, like it.

C. SUMMARY

The debriefing process has been suggested for the maintenance sections of the Israeli Air Force squadrons. The implementation stage of such a process, including several problems such as resistance, lack of collaboration, and other structural and cultural problems, have been discussed.

A literature review has been presented and the theories which may be useful when considering the change have been

presented. The actual situation of the Israeli Air Force has been examined and some suggestions for the implementation have been presented.

The main steps to be taken consist of:

- (1) The need to consider environmental and cultural variables.
- (2) The need to achieve commitment of key players.
- (3) The need to ensure participation and to provide encouragement and support.
- (4) The need to develop realistic expectations and to be sufficiently patient.

VII. CONCLUSIONS AND RECOMMENDATIONS

The objectives of this chapter are to summarize the major findings across the research questions, to draw conclusions out of these findings and to recommend a course of action. The conclusions will be related to the survey findings and to the theory presented.

The questions addressed in this study are:

- (1) What is the role of the debriefing process in the maintenance sections?
- (2) What are the debriefing structure, forums, frequency, and subjects?
- (3) What are the attitudes of targeted sectors toward the suggested procedure?
- (4) What are the organizational changes and concerns to be considered when implementing this change?

A. CONCLUSIONS

1. The Role of the Debriefing Process in the Maintenance Sections

Six hypotheses regarding the role of the ongoing debriefing have been tested. The debriefing process for the IAF maintenance sections serves as a tool for information transfer in both directions across the chain of command, and serves as a tool for mutual learning, for better learning of new recruits and for improvement of the essence of learning. The debriefing also serves as a tool to enhance the organizational environment and interrelationships, as a vehicle

for enhancement of openness and freedom in expressing concerns, and as an educational tool for honesty. The above conclusions have been drawn out of the opinion survey. In addition, debriefing serves as a tool for feedback in its broader context, namely "information return related to an output" (Murrell, 1975), motivational function (Annet, 1969; Vroom, 1964), and learning or informational function (Vroom, 1964).

These are by no means the only roles of the debriefing. These are the only roles which have been addressed in this research, and further research may find or identify additional roles. It has been concluded that the above roles are not mutually exclusive, hence, determination of cause and effect relationships require more research.

2. The Debriefing Structure, Forums, Frequency and Discussion Subjects

The appropriate length of a debriefing for the line/department personnel is about 20 minutes, on a daily basis. The proper time is when the last flight has landed. The appropriate forums for the debriefings are: (1) the entire personnel of the line or department headed by its LC/DC; and (2) the LC/DCs with the maintenance officers headed by the MSC. No officers should participate in the line/department debriefing.

The subjects to be debriefed include:

- (1) Maintenance procedural problems and maintenance errors;

- (2) Major malfunctions and the way they have been handled;
- (3) Maintenance procedures and their compliance;
- (4) Information type issues;
- (5) Daily tasks and timing fulfillment;
- (6) Exceptional events;
- (7) Daily routine management;
- (8) Open discussion about current feelings of personnel and their concerns.

The debriefing technique should be based upon self-debriefing. The principle of self-debriefing is expected to encourage participation, promote satisfaction and educate participants to honesty and openness.

3. Attitudes of Targeted Sectors Toward the Suggested Debriefing

Three sectors have been addressed in this study:

- (1) Enlisted personnel of the "experimental" squadron;
- (2) Line/department personnel of the same squadron; and
- (3) Squadron commanders and maintenance sections' commanders.

They have all extremely appreciated the debriefing in general, and have expressed a favorable attitude toward the idea. The only concern that has been expressed by "nonexperimental" commanders is the ability to actually carry out the debriefing in a structural and routine manner. However, the CO/MSCs have identified the following advantages of the debriefing process:

- (1) Improvement of maintenance standards;
- (2) Mutual learning;

- (3) Better openness, morale and environment;
- (4) Cohesiveness.

These perceived advantages tend to support some of the above hypotheses.

4. The Organizational Changes and Concerns to be Considered When Implementing This Change

The following aspects are suggested to be considered in the point of implementation:

- (1) Environmental and cultural variables;
- (2) The commitment of key players to the change;
- (3) A leadership style of participation, encouragement and support;
- (4) Patience and reasonable expectations regarding the pace of implementation and the standards for an effective debrief at the beginning of the process.

The essence of the debriefing may be a controversial issue to some extent. However, the findings of this study strongly support the idea of the debriefing process as a potential tool with many favorable and desirable advantages. The question of attainability of such a process in the IAF maintenance sections has been satisfactorily answered by the successful implementation in squadron #1. If the debriefing is a good idea and attainable, the conclusion must be to implement it.

The writer has been convinced that the above conclusions may be generalized to all IAF fighter squadrons. The concepts and principles may be valid whether or not the procedural aspects are strictly followed.

B. RECOMMENDATIONS

The writer recommends the establishment and implementation of a debriefing process throughout the IAF fighter squadrons. The principles of such a debriefing should be based on and conform to the conclusions of this study. The initiation of the process may originate in any function or level of the organization. However, compliance with the implementation principles which have been suggested in this study look more promising towards a successful execution.

C. SUMMARY

The debriefing process is nothing more than a means to achieve a higher level of effectiveness. Effectiveness, loosely speaking, contains the aspects and advantages which have been attributed to the debriefing process.

This study has demonstrated a strong positive attitude toward the debriefing by commanders and subordinates, and has pointed out some dimensions which appear to be better in the "experimental" squadron. The ongoing maintenance debriefing process is only a first attempt at implementing the idea, and undoubtedly may be improved, with experience. This study lacks "hard" evidence for actual output improvement. Nevertheless, positive attitudes and cost-benefit appearance on one hand, as well as proven attainability on the other hand, seem to be persuasive enough to apply the debriefing process.

The debriefing process is an educational process. The educational process is complicated and long term in nature. Nevertheless, the writer is strong in his belief that the benefits of this "investment" will be sound and visible in the long run.

APPENDIX

The questionnaire of the squadron commanders (COs) and maintenance-section commanders (MSCs) is presented below. This questionnaire had been answered by the six COs and MSCs of the three squadrons: the "experimental" squadron (#1), and the two "control" squadrons (#2, #3). The questions which had been asked are presented here, along with a summary of the responses. The number of participants is small ($N = 6$), so statistical manipulation would not make much sense. However, the reader may get some feeling by looking at the median (MED), the standard deviation (STDV), and the .99 confidence interval (CI) computed using the Wilcoxon procedure. A summary of the open-ended questions has already been presented in Chapter V.

A. THE QUESTIONNAIRE

- (1) The information I am trying to transfer down, reaches everyone, to the last person. (MED = 4, CI = (4,5), STDV = .52.)
- (2) There is no difficulty for anyone in the squadron to raise any problem with me. (MED = 4.5, CI = (3,5), STDV = .82.)
- (3) I know about all exceptional events in my squadron. (MED = 4, CI = (3,5), STDV = .63.)
- (4) The department/line personnel are well aware of other shop's problems. (MED = 4, CI = (2,5), STDV = 1.09.)
- (5) I am very pleased with the training my enlisted personnel receive. (MED = 4.5, CI = (4,5), STDV = .55.)

- (6) The learning process from our own maintenance errors is quite satisfactory. (MED = 4, CI = (3,5), STDV = .75.)
- (7) I am pleased with the way we debrief maintenance errors. (MED = 5, CI = (4,5), STDV = .52.)
- (8) If each individual maintenance error committed in the squadron would reach everyone, we would probably improve our performance. (MED = 5, CI = (4,5), STDV = .45.)
- (9) I believe that learning from maintenance errors is more effective than learning from successes. (MED = 4, CI = (3,5), STDV = .89.)
- (10) I am pleased with our learning climate. (MED = 4.5, CI = (4,5), STDV = .55.)
- (11) The morale in our maintenance-section is high. (MED = 4, CI = (4,5), STDV = .41.)
- (12) I am pleased with the interrelationship among our enlisted. (MED = 4, CI = (3,5), STDV = .63.)
- (13) There is a great deal of mutual assistance among our personnel. (MED = 3.5, CI = (3,5), STDV = .82.)
- (14) I believe that our people inform their immediate chiefs about their mistakes. (MED = 3.5, CI = (3,5), STDV = .82.)
- (15) Our juniors feel free to express themselves. (MED = 4, CI = (3,5), STDV = .63.)
- (16) I am afraid that some of the informal opinions among my men do not reach me. (MED = 1, CI = (1,3), STDV = .84.)
- (17) As far as I know, the guys tell their immediate chiefs the truth. (MED = 4, CI = (3,5), STDV = .63.)
- (18) Generally speaking, I believe that our personnel do not hide the truth from their commanders. (MED = 4, CI = (1,5), STDV = 1.37.)
- (19) Every enlisted man knows exactly what the commanders think about his performance. (MED = 4, CI = (3,5), STDV = .89.)

- (20) As a commander I feel that I have no problem knowing the level of performance of each of my subordinates. (MED = 5, CI = (4,5), STDV = .45.)
- (21) I depend upon my subordinates for evaluation purposes. (MED = 3, CI = (1,4), STDV = 1.03.)
- (22) I believe the line/department chiefs know their men very well. (MED = 4.5, CI = (4,5), STDV = .55.)
- (23) Every man in the squadron is aware of his peers' opinions about himself. (MED = 3, CI = (2,4), STDV = .71.)
- (24) I believe we should debrief only exceptional events. (MED = 2.5, CI = (not enough data), STDV = 2.06.)
- (25) I believe that extremely good performance should be debriefed in public. (MED = 5, CI = (3,5), STDV = .84.)
- (26) Basically I believe we should debrief more if we had the time. (MED = 4.5, CI = (4,5), STDV = .55.)
- (27) Consider a situation where no time constraints exist. The appropriate debriefing intervals would be: (1) everyday; (2) every two days; (3) twice a week; (4) once a week; (5) once every two weeks; (6) exceptional events only. (MED = 2.5, CI = (1,5), STDV = 1.47.)
- (28) Considering existing constraints, debriefing should take place: (1) everyday; (2) every two days; (3) twice a week; (4) once a week; (5) once every two weeks; (6) exceptional events only. (MED = 4, CI = (1,6), STDV = 1.76.)
- (29) What do you think about the idea of having debriefings in maintenance sections similar to the aircrews section? What advantages do you see, and what, if any, improvements?
- (30) Assuming there is a need for the debriefing, what are the appropriate forums?
- (31) What are the issues to be debriefed?
- (32) Is the debriefing "cost/beneficial?" How much is it worth?
- (33) Additional comments, please.

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